ANNUAL REPORT

PROVINCIAL BOARD OF HEALTH

1924

DEPARTMENT OF HEALTH

Forty-third Annual Report

OF THE

Provincial Board of Health

Ontario, Canada

FOR THE YEAR

1924

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

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TORONTO

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TORONTO
CANADA

To His Honour Henry Cockshutt, Esq.,
Lieutenant-Governor of the Province of Ontario.

May It Please Your Honour:

I herewith beg to submit for your consideration the Forty-third Annual Report of the Provincial Board of Health for the year 1924.

Respectfully yours,

Forbes Godfrey,
Minister of Health and Labour.

Toronto, February 1st, 1925.

To The Honourable Forbes Godfrey, M.D.,
Minister of Health and Labour.

Sir,—I have the honour to submit for your approval the Forty-third Annual Report of the Provincial Board of Health, made in conformity with and under the provisions of the Public Health Act, for the year 1924.

I have the honour to be, Sir,

Your obedient servant,

John W. S. McCullough,
Chief Officer of Health.

Toronto, February 1st, 1925.

Dr. R. W. Bell, late Provincial Inspector of Health, died 8th June, 1923.
(*See 42nd Annual Report, page 11.*)

ORGANIZATION

MINISTER OF HEALTH AND LABOUR.

THE HONOURABLE FORBES GODFREY, M.D.

The Provincial Board of Health

Adam H. Wright, B.A., M.D., M.R.C.S., Eng., *Chairman*.....Toronto
Henry R. Casgrain, M.D., C.M.....Windsor
Thos. E. Kaiser, M.D., C.M.....Oshawa
W. H. Howey, M.D., C.M.....Sudbury
A. S. McElroy, M.D., C.M.....Ottawa
James Roberts, M.D., C.M., M.O.H.....Hamilton
John W. S. McCullough, M.D., C.M., D.P.H.....Toronto

Executive

John W. S. McCullough, M.D., C.M., D.P.H.....Chief Officer of Health

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District Officers of Health

District: No. 1. Thos. J. McNally, M.D., C.M., D.P.H.....London
No. 2. J. J. Fraser, M.D., D.S.O.....Toronto
No. 3. Daniel A. McClenahan, M.D., C.M., D.P.H.....Hamilton
No. 4. Norman H. Sutton, M.B.....Peterboro
No. 5. Paul J. Moloney, M.D., C.M.....Ottawa
No. 6. W. Egerton George, M.D.....North Bay
No. 7. G. L. Sparks, M.D.....Fort William
No. 8. Hugh W. Johnston, M.D.....Sault Ste. Marie

Sanitary Inspectors

Alex. R. White, *Chief Inspector* R. B. McCauley John Richardson D. S. McKee
Wm. C. Millar

Division of Sanitary Engineering

F. A. Dallyn, C.E.....Provincial Sanitary Engineer
A. V. DeLaporte, B.A.Sc.....Chemist in Charge of Experimental Station
A. E. Berry, M.A.Sc., C.E. (Tor.).....Assistant Engineer

Division of Laboratories

Charles M. Anderson, M.D., C.M., C.P.H.....Director
A. R. Bonham, B.A.Sc.....Chemist
A. L. McNabb, V.S.....Bacteriologist

Branches

Hibbert W. Hill, M.D., D.P.H., *Director* ..... London
James Miller, M.D., F.R.C.S. (Edin.), *Director* ..... Kingston
N. O. Thomas, B.A., M.B., *Director* ..... Fort William
N. F. W. Graham, M.B., *Director* ..... Sault Ste. Marie
J. S. Douglas, M.B., *Director* ..... North Bay
A. Y. McNair, M.B., *Director* ..... Peterborough
G. Murray Fraser, M.B. ..... Owen Sound
F. L. Letts, M.B., D.P.H. ..... Ottawa

Division of Preventable Diseases

R. R. McClenahan, B.A., M.B., D.P.H. ..... Director
J. W. Hunt, M.B., L.R.C.P., M.R.C.S. ..... Clinical Specialist
A. L. McKay, B.A., M.B. ..... Clinical Specialist
Chas. P. Fenwick, M.B. ..... Clinical Specialist
Edna L. Moore, A.R.R.C. ..... Social Service Nurse

Division of Industrial Hygiene

J. G. Cunningham, B.A., M.B., D.P.H. ..... Director
R. M. Hutton, B.A. (Oxon.) ..... Literary Research
A. R. Riddell, B.A., M.B. ..... Clinical Specialist

Division of Public Health Education

J. J. Middleton, M.B., D.P.H. ..... Director
Edward Jones ..... Moving Picture Operator

Division of Maternal and Child Welfare and Public Health Nursing

Mary Power, B.A. ..... Director
Beryl Knox ..... Associate Director
Marjorie Burgess, B.A. ..... Statistician
Wm. J. Bell, M.B. ..... Pediatrician

Division of Epidemiology

Consulting Staff

Public Health Administration ..... J. G. Fitzgerald, M.D., F.R.S.C.
Pediatrics ..... Alan Brown, B.A., M.B.
Obstetrics ..... Wm. B. Hendry, M.D., D.S.O.

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ANNUAL REPORT

OF THE

Provincial Board of Health

First Annual Report of the Department of Health For the Province of Ontario

For the Year Ending December 31st, 1924

RESUMÉ OF THE TRANSACTIONS OF THE PROVINCIAL BOARD OF HEALTH BY JOHN W. S. McCULLOUGH, CHIEF OFFICER OF HEALTH.

This is the Forty-third Annual Report of the Provincial Board of Health for the year ending December 31st, 1924.

The Board held four regular sessions at which all the members were present.

Legislation:

The following legislation in respect to public health was enacted by the Legislature during the session of 1924, viz.:—

I.

An Act for the Establishment of the Department of Health.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. This Act may be cited as *The Public Health Act, 1924.* — Short title.

2. There shall be a Department of Health over which the Minister of Health shall preside. — Department of Health.

3.—(1) There shall be a Deputy Minister of Health who shall be appointed from time to time as a vacancy occurs, by the Lieutenant-Governor in Council and shall perform such duties in the Department as may be assigned to him by the Lieutenant-Governor in Council and by the Minister, and in the absence of the Minister the Deputy Minister shall preside over the department. — Deputy Minister, appointment of.

(2) The Deputy Minister shall be the Chief Officer of Health for Ontario under the provisions of *The Public Health Act.* — Chief Officer of Health to be Deputy Minister.

(3) The Deputy Minister shall have, exercise and perform all the rights, powers and duties of a deputy head of a department as provided in *The Ontario Public Service Act* and amendments thereto. — Powers and duties. Rev. Stat c. 14.

Appointment of officers, clerks, etc.

4. The Lieutenant-Governor in Council may appoint such officers, clerks and servants of the Department as may be deemed necessary and may prescribe their duties and fix their salaries or other remuneration.

Salaries.

5. The salary or other remuneration of the Deputy Minister and of the officers, clerks and servants of the Departments shall be fixed by the Lieutenant-Governor in Council and shall be payable out of such moneys as may be appropriated by the Legislature for that purpose.

Powers of Department.

6. The Department shall be charged with the administration and enforcement of *The Public Health Act* and generally all the statutes relating to the protection of the health of the people of Ontario, and of any regulations made under any such statutes.

Rev. Stat., c. 13, s. 3, amended.

7.—(1) Section 3 of *The Executive Council Act* is amended by adding after the words "Minister of Labour" added thereto by subsection 1 of section 3 of *The Department of Labour Act, 1919*, the words "a Minister of Health."

Rev. Stat. c. 13, s. 4, subs. 1, amended.

(2) Subsection 1 of section 4 of *The Executive Council Act* is amended by adding after the words and figures, "The Minister of Mines—$6,000" added thereto by subsection 2 of section 3 of *The Department of Mines Act, 1920*, the words and figures "The Minister of Health—$6,000."

Rev. Stat., c. 218, s. 2, cl *h*, repealed. "Minister."

8. The clause lettered *h* in section 2 of *The Public Health Act* is repealed and the following substituted therefor:

(*h*) "Minister" shall mean Minister of Health.

Commencement of Act.

9. This Act shall come into force on the day upon which it receives the Royal Assent.

II.

An Act to Amend The Public Health Act.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Short title.

1. This Act may be cited as *The Public Health Act, 1924.*

Rev. Stat., c. 218, s. 25, subs. 2, amended.

2. Subsection 2 of section 25 of *The Public Health Act* as amended by section 3 of *The Public Health Amendment Act, 1918*, and section 4 of *The Public Health Amendment Act, 1920*, is further amended by adding after the words, "sanitary conveniences," in the fifth line, the words: "and construct private drain connections required to connect such sanitary conveniences with the common sewers of the municipality," so that the subsection will now read as follows:—

When local board may instal sanitary conveniences.

(2) Where a local board in a city or in any town, village or police village in which a sewerage system has been established recommends that sanitary conveniences should be installed in any building, and is of the opinion that the owner of the premises is unable to pay the expense of the same at once,

the municipality may install suitable sanitary conveniences and construct private drain connections required to connect such sanitary conveniences with the common sewers of the municipality at the expense of the owner, and the board may direct that the cost, including interest at a rate not exceeding six per centum on the deferred payments, be paid by the owner in equal successive annual payments extending over a period not exceeding five years, and that such annual payments be added by the clerk of the municipality to the collector's roll and collected in like manner as municipal taxes.

Payment by owner in equal annual instalments.

III.

An Act Respecting Medical and Dental Inspection of Pupils in Public and Separate Schools.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. This Act may be cited as *The School Medical and Dental Inspection Act, 1924.* Short title.

2. Section 5 of *The Department of Education Act is* amended by adding thereto the following clause:— Rev. Stat. c. 265, s. 5, amended.

(*ee*) For the medical and dental inspection of pupils in public and separate schools under agreement between the local boards of health and school boards approved of by the Minister and by the Minister of Health. Medical and dental inspection

3. Section 76 of *The Public Schools Act, 1920*, is amended by adding thereto the following clause:— 1920, c. 100, s. 76, amended.

(*jj*) Subject to the regulations to provide and pay for such medical and dental inspection of the pupils by officers of the local boards of health. Medical and dental inspection.

4. *The Public Health Act* is amended by adding thereto the following section: Rev. Stat , c 218, amended.

MEDICAL AND DENTAL INSPECTION IN SCHOOLS.

85*a*. Subject to any regulations made under *The Department of Education Act* the local board, upon such terms and conditions as may be agreed upon with any public or separate school board, shall provide medical and dental inspection for the pupils in the schools of the board and render such other services relating to the health and well-being of the pupils as any such regulation may require and as may be directed by the Minister of Health. Boards to provide for medical and dental inspection.

5. This Act shall come into force on the day upon which it receives the Royal Assent. Commencement of Act.

REGULATIONS

The following Regulations were enacted:—

(1)—Regulations Respecting the Manufacture of Non-Intoxicating Beverages, Distilled and Mineral Water, and the Manufacture of Syrup, Wines and Brewed Beer.

(*The Ontario Gazette*, October 25th, 1924.)

Copy of an Order-in-Council, Approved by His Honour the Lieutenant-Governor, dated the 15th day of October, A.D. 1924.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached Regulations, being Regulations respecting the manufacture of Non-intoxicating Beverages, distilled and mineral water, and the manufacture of syrup, wines and brewed beer, made under the authority of subsection (*q*) of Section 8, Chapter 218, R.S.O., amended, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

By virtue of Subsection (*q*), Section 8, Chapter 218, R.S.O., amended.

(1) The word "manufacture" as used in these Regulations shall mean the mixing of one or more ingredients, the manufacture of simple syrup, the mixing of acids or colours with simple syrups, and include the bottling of any beverage, or of any ingredient used in the manufacture of beverages, but shall not include the brewing, preparing, storing or bottling of malt liquors, that is to say ale, porter and lager, nor service at soda fountains, nor ice cream parlors, which takes place in full view of the customer.

(2) The word "bottling" as used in these regulations shall mean the placing of any fluid, or of any solid, or of any ingredient, which is offered for sale as a non-intoxicating beverage, or which is used in the manufacture of such beverage, in a sealed container.

(3) The word "beverage" as used in these regulations shall mean any non-intoxicating drink, distilled, mineral and spring waters, syrups, wines, brewed ginger beer, brewed infusions or other bitters, but shall not include any malt liquor, that is to say, ale, porter, or lager.

(4) *Permits.*—The application for permit shall be made in writing to the local board of health of the municipality in which the premises and manufacturing operations are situated. The application shall recite the location of the plant and the offices together with the legend name under which the business is proposed to be conducted, the names and residences of each and every member of the firm carrying on such business, and in the case of an incorporated company the names of the President and Secretary.

(*a*) Where an assignee takes over an establishment already registered and operating under permit, he shall forthwith notify the local board of health of the change of management, and as to whether the legend of the said manufacturers is to be continued, and the extent to which the property of the said manufacturers that is to say, crowns and containers are to be used in manufacture of beverages.

(*b*) Any person or persons acquiring job lots, or assets of other manufacturers shall notify the local board of health of the acquisition or use of the containers or crowns.

(*c*) Where the operation of the applicant includes the bottling, or distribution of mineral, or other waters, the applicant shall furnish in addition a description of the locality of the spring and chemical analysis of the water, together with a statement of the methods of cleansing, sterilizing and filling bottles, or other containers, at the said plant.

(5) All water used in the manufacture of beverages shall be free from foreign matter in suspension, and at no time shall show a higher B. Coli content than 2 per 100 cubic centimetres when analyzed according to the prescribed methods of the American Public Health Association, and calculated according to the method of Earl B. Phelps; and the medical officer of health, or any one appointed by him may take samples of beverages, or ingredients used in their manufacture, for analysis.

Samples may be referred to the laboratories of the Provincial Board for report. Any analysis made by and subsequently confirmed by the Provincial Board shall be conclusive evidence of the matter cited.

(6) The medical officer of health may direct the detention of any beverage, water or article found in any bottling plant, or elsewhere in respect to which the requirements of these regulations have not been complied with, or which have been released from premises in which the regulations have not been complied with, and may cause the same to be destroyed or pasteurized as he may deem necessary, and any such detained article should not be removed, except by the written authority of the medical officer of health.

(7) The manufacture of beverages and the ingredients used in such manufacture shall be conducted only in sanitary premises, and every such premises shall have proper light, both natural and artificial, proper ventilation, and the air must be free from offensive odours, chemical fumes, dust and dense smoke.

(*a*) Where stables are situated, adjacent to the bottling works, the regulations of the Provincial Board of Health in respect to the storage of manure shall be enforced, and the grounds about the premises shall be kept in sanitary condition to the satisfaction of the medical officer of health.

(*b*) Proper precaution shall be taken to exclude flies and vermin from those portions of the premises where ingredients or syrups are exposed.

(*c*) The manufacture of syrups, or of simple syrup, colours and extracts, and the preparation of syrup for use in the bottle-filling machinery shall be carried on in a room properly partitioned off from the rest of the premises, and the walls and ceiling of the syrup-room shall be smooth, free of crevices, and painted white and varnished, or enamelled or tiled. The floor must be of impervious material, kept clean and

free from dust. The containers shall be fitted with good fitting lids. Felt filters, or filter mass, or other satisfactory filtering systems for syrups must be used and be maintained in a thoroughly satisfactory condition. Proper dippers, measures, ladles, etc., shall be available for the handling of syrup, colours and extracts, and be of a type permitting satisfactory handling. No hollow handled implement is permitted. Syrups, essences, etc., shall be kept in containers, and proper shelving must be provided for the bottles containing colours, extracts, etc., and a suitable platform provided for syrup crocks, barrels and similar containers. The room shall contain a boiler, or cauldron and heating apparatus for the sterilization of syrups and containers, together with the necessary sink supplied with hot and cold water, and drained through a proper waste trap and vent.

(*d*) *Bottling-room.*—The bottling-room shall be equipped with proper facilities for the washing and sterilization of bottles and other containers. Suitable provision must be made for the soaking and rinsing of containers. A sterilizing equipment must be provided, and shall be supplied with steam or boiling water. Where wash tubs are used they must be supplied with proper waste pipes and connected to a drain, and provided with running hot and cold water. The equipment shall include proper machinery for syruping, carbonating, filling and crowning of bottles.

(*e*) Wash basins and lavatory accommodation shall be provided and readily accessible to the manufacturing room. In municipalities having a sewerage system proper lavatory and w.c. must be provided and must be supplied with running water, and equipped with soap and clean-individual towels.

Wash-room, closet and other conveniences shall be separate from the bottling room, and shall be kept clean, and in a sanitary condition. It may when large enough serve the purpose of a dressing-room, where a separate dressing-room is not provided, and shall be provided with proper light and ventilation. The Ontario Factory Act shall govern the number of conveniences, and provisions for male and female labour, as provided in that Act.

Notices shall be posted in every such lavatory, instructing the employees to wash their hands properly before starting work, and as may be required. All equipment and apparatus shall be to the satisfaction of the medical officer of health.

(*f*) *Stock-room.*—A stock-room shall be provided for the storage of sugar, syrups, crowns, etc., and all bag sugar, ginger, or extracts, whether in sealed containers or otherwise, shall be stored in a clean place free from moisture and dust.

(8) Syrups, essences, colours, fruit extracts, and fruit juices shall be prepared from articles that shall be sound, clean, wholesome and fit for food, and any such article, or the products thereof found at any premises coming under the operation of these regulations in an unsound or unwholesome condition shall be confiscated and destroyed, subject to these regulations, and no article subject to inspection under these regulations shall be offered or sold under any name intended or calculated to deceive as to its true nature. The medical officer

of health may require to be produced for inspection or for the purpose of obtaining copies thereof, or extracts therefrom any book, shipping bills, bills of lading, or other papers for the purpose of identifying the origin of any article condemned on inspection, and for the purpose of determining the destination of the manufactured product, which has been shipped, and containing the alleged deleterious matter.

(*a*) Colour, essences and extracts and fruit juices used in the manufacture of beverages within the meaning of these regulations shall conform with the requirements of the Food and Drug Act, and the Adulteration Act of the Dominion of Canada. Colours may be sterilized by heating to a temperature of 150°F. for thirty minutes, and then cooled before mixing with syrups or extracts. All colours in solution shall be kept in clean, sterile containers.

(*b*) All component ingredients shall be properly filtered before use.

(*c*) *Simple Syrup.*—It is recommended that simple syrup be made by mixing the desired amount of sugar and water, and that this solution be not super-saturated when cold. To sterilize, the syrup may be heated to a temperature of 150°F. and maintained at that temperature for thirty minutes. It should be allowed to cool before adding the extract and colour. Syrups must be kept in clean, sterile containers and if a scum appears on the surface of the syrup during the process of heating it shall be removed only with a sterile skimmer. Syrup shall be passed through proper filters. Filters shall be thoroughly cleaned and sterilized by boiling before use.

(9) *Bottling and Washing Machinery.*—Every machine used in the filling or washing of containers, together with the pipes, spouts and storage vats shall be kept in a thoroughly sanitary manner, and shall be sterilized by steam as required.

(*a*) Syruping or filling by any arrangement of apparatus in which the operator's hand is directly above the open container or containers is not permissible, and the feeding of crowns by hand into crowning machines is objectionable.

(10) *Cleansing of Containers.*—All bottles and other containers used for the storage of beverages and ingredients used in the manufacture of beverages shall be thoroughly cleansed immediately before use, and sterilized by scalding water or steam, except in the case of automatic soakers, using 3 per cent. caustic soda solution, and where the contact period in the soaker is not less than ten minutes, five minutes of which shall be in the caustic solution. All bottles shall be examined immediately before washing. Those which have contained oil, or other substances difficult of removal, and objectionable from the standpoint of the bottle cleaner, together with those containing any foreign objects shall be discarded and no bottle, other than the property of, or under lease to, the bottler shall be used.

(*a*) *Hand Washing.*—Bottles must be soaked in a tub, in which the water shall be raised to a temperature of, at least, 120°F. The soak water shall contain an approximate 3 per cent. of caustic soda, soda ash, or other approved washing compound, that is to say, one pound of the compound to every three gallons of water in the soak tub. The bottles must be entirely immersed in the soak at the correct temperature for, at least, thirty minutes. They shall then be emptied of all solution, hand-rubbed, and brushed by a rotary brush.

The rotary brush machine shall be fitted with a brush of such size as to do the work efficiently, and all such brushes shall be kept clean and in good repair. All visible foreign matter must be removed before proceeding to a further soak in clean, clear water, in which they shall be washed free of all traces of the soaking solution. The temperature of the second bath or rinse shall be not less than 120°F. The bottles then may be removed and sterilized on a rinser by water at a temperature of 180°F., or steam for a period of three minutes. They then may be inserted in an upright position in cases, following which they shall be laid on their sides and kept in that position until cool and ready for filling. Bottles which are not immediately filled and sealed shall be returned to the sterilizer and resterilized before use.

(*b*) *Automatic Soaker and Bottle-Washing Machinery.*—All automatic soakers and bottle-washing machinery must be provided with steam, or other facilities in order to maintain the proper temperature, and in all such machines bottles shall be held at least five minutes in a 3 per cent. caustic soak solution, the temperature of which shall be raised to at least 120°F. The bottles shall be held in the soakers not less than ten minutes. One compartment soakers must be provided with tray, rotary brush machine and rinser, or other means by which efficient washing may be done. The density of the caustic solution in automatic soakers must be frequently tested by the use of a hydrometer, the reading upon which shall be 1.025. The soaker shall be charged as required with caustic soda that has first been dissolved. Automatic bottle washers shall at no time be operated so as to permit bottles passing through, showing traces of suspended matter and improper sterilization.

(11) *Siphons.*—The filler's name or legend shall appear, blown or etched, on the glass of every siphon.

(12) (*a*) *Containers.*—In order to facilitate inspection, it is recommended that manufacturers standardize containers containing a clear glass, which through the use of reflected light will indicate the presence of foreign matter or films on their surfaces. *The use of small mouth stoneware, crock and other opaque containers for beverages is extremely unsatisfactory on sanitary grounds and their use is hereby prohibited on and after June 1st, 1927.* Kegs and barrel containers should be so supplied with bungs that the interiors can be readily sighted and steam readily applied for sterilization.

(*b*) Kegs and barrels shall be effectively sterilized by steam or otherwise, immediately before re-filling.

(*c*) The packaging of dry products used in the industry should be in containers, which may be hermetically sealed, and not readily subject to damage in transit.

(*d*) New bottles and other containers shall be free of fine particles of glass, dust or other harmful substances introduced in the manufacture, and shall be sterilized before use.

(13) No person shall be employed about any premises used for the manufacture and handling of beverages, or ingredients used in the manufacture of beverages, who does not observe cleanliness in his or her habits, and who is not free from communicable disease. All persons engaged in bottling, or handling of beverages directly shall wear when at this occupation suitable clothing.

(14) Penalties shall be those set out in Subsection 2 of Section 100 of the Public Health Act.

(2)—Regulations for Medical and Dental Inspection of Public and Separate Schools

1. Local Organization

(1) On and after July 31st, 1924, every arrangement for Medical and Dental Inspection made by a School Board, or a number of School Boards acting together, shall be in charge of the local Health authorities as provided for in section 76 (*jj*) of the Public Schools Act as amended in 1924.

(2) Any School Board may, with the approval of the Minister, enter into an agreement with the local Board of Health whereby the latter shall provide Medical and Dental Inspection for the pupils in the schools under the Board, and render such other services relating to the health and well-being of the pupils as the Regulations may require.

(3) Where a School Board or number of School Boards acting either alone or in conjunction with other local organizations, approved for this purpose by the Minister, have already adopted a system of Medical and Dental Inspection, it shall be conducted as heretofore, but the Board or Boards concerned may at any time, by resolution, decide to carry on the service as provided for in sections (1) and (2) above.

2. Central Office Administration

(1) The Department of Health shall appoint officers for the purpose of Medical and Dental Inspection in the Public and Separate Schools of Ontario, and shall fix and pay the salaries and travelling expenses of such officers, and the expenses incidental to such inspection; but every such appointment shall be first approved by the Minister of Education.

(2) The Department of Health shall make recommendations to the Minister of Education that such grants as are provided by the Department of Education be paid to School Boards or Medical Inspection Committees, when the work done meets the standard set by the Department, and shall make recommendations to the Minister of Health respecting grants to be paid by the Department of Health under similar circumstances.

(3) It shall be the duty of such officers—

(*a*) To inspect the work of School Medical Officers, Dental Officers and Nurses appointed by Boards of Education, School Boards or local Boards of Health.

(*b*) To furnish reports in duplicate, one to be sent to the Minister of Education and the other to the Minister of Health. In this report shall be included such information as the type of work done, the number of persons employed, the number of children in the district served, and the amount of time given by the staff employed for this service.

(*c*) To supply such instructions and help in the installation of Medical and Dental Inspection and School Nursing in all centres where such service is adopted.

(*d*) To encourage the adoption of the standard Physical Record Form now in use throughout the Province, and known as the A.D.P. Card, and such other forms as may make satisfactory record-keeping possible.

(*e*) To perform such other duties as may be jointly agreed upon by the Minister of Education and the Minister of Health.

3. Qualification of Staffs

(A) Medical and nursing

(1) Where an agreement has been entered into between the School Board and the local Board of Health to carry on a system of School Medical Inspection, the Medical Officer of Health for the Municipality shall, subject to the approval of the Minister of Health, act as School Medical Officer, or Chief School Medical Officer, as the case may be.

(2) Under the system of Medical and Dental Inspection in operation previous to July 31st, 1924, the School Board or the Committee shall appoint for the purpose of Medical Inspection one or more legally qualified medical practitioners of not less than two years' experience in the practice of their profession; or, with the approval of the Minister, they may appoint the local Medical Officer of Health who, subject to the Regulations, shall perform the duties of School Medical Officer in addition to those of Medical Officer of Health.

(3) When the School Board or the Committee is unable to secure the School Medical Officer provided for in section 1, subsection 3, it may substitute therefor one or more nurses who shall be graduates of a reputable training school for nurses with not less than two years' experience in nursing, and who shall have satisfactorily completed the Course for School Nursing given annually by the Department of Education, or shall have obtained the Diploma of Public Health Nursing from a recognized University, and this Regulation shall not apply to any Municipality where Medical Inspection is established under the local Board of Health.

(4) Where duly qualified nurses are not available, the Department of Education shall have power to grant temporary certificates to nurses on the application of the appointing body.

(5) The Officer appointed under (1) and (2) above shall be known as the School Medical Officer.

(6) Where Medical Inspection is established by the local Board of Health, the Nurse or Nurses employed for Public Health and School work shall be qualified as in subsections (3) and (4) above, and shall be subject to the approval of the Department of Health.

(B) Dental

(1) The Dental Inspection shall be carried on by the Board or the Committee or the local Board of Health under the Regulations herein prescribed, by one or more officers appointed by such Board or Committee or by the local Board of Health, who shall be known as School Dental Officers and who shall be duly qualified Dental Surgeons of not less than two years' experience in the practice of their profession.

(2) When more School Dental Officers than one are appointed, one may be designated, by the Board or the Committee or the local Board of Health, Chief School Dental Officer, and, subject to the Regulations, he may be given such oversight of the duties of the others as the local authority may determine.

(3) The School Board or the Committee or the local Board of Health provided for in Regulation (1), may also appoint a School Dental Officer, or Officers, who shall be subject to the general oversight of the School Medical Officer as defined by the Regulations.

4. Additional Appointments

(1) When the School Board or the Committee appoints more than one School Medical Officer, or more than one School Nurse, one of the former may be designated by it as Chief Medical Officer and one of the latter as School Nurse Supervisor, and subject to the Regulations may be given such oversight of the duties of the others as the School Board or the Board of Health or the Committee may determine.

(2) In addition to the School Medical Officer or Officers, the School Board or the Committee may appoint one or more nurses who shall be qualified in accordance with the Regulations, and shall be known as School Nurses. Subject to the Regulations these nurses shall be under the direction of the School Medical Officer, or Chief School Medical Officer, as the case may be.

5. Expenses

(1) Where Medical and Dental Inspection is provided by a School Board, the cost thereof shall be included in that of the maintenance of the school, and shall be provided for in the same manner.

(2) Where Medical and Dental Inspection is provided for by a Committee, the cost of maintenance to be borne by each of the Boards and other local organizations represented thereon shall be settled by mutual agreement between the said Boards and organizations, and in the case of the School Boards it shall be included in the cost of the maintenance of the School and be provided for in the same manner.

(3) Where Medical and Dental Inspection is provided by the local Board of Health, the appointment of physicians, nurses and other services shall, subject to the Regulations, be made by the local Board of Health who shall bear the expenses of such services.

6. Inspection

(1) The School Board or the Committee or the local Board of Health shall determine how often the members of the staffs appointed under the Regulations shall visit the schools; but without the sanction of the Minister, the number of such visits shall not be less than one a month.

(2) The hours of work of the members of the said staffs shall be determined by the Board or the Committee or the local Board of Health, as the case may be, but shall be during the regular school hours, except, in the case of the nurses, when home visiting may make regular hours impossible; but the School Board, Committee or the local Board of Health may arrange for additional home visiting on Saturdays.

(3) Subject to the approval of the Principal, the inspection may be made in the classroom; all examinations, however, shall be made in a suitable room or other part of the building where no other pupils are present.

(4) The Board or the Committee or the local Board of Health may install in a room suitable for the purpose, in one or more of the school buildings, one or more dental chairs for the examination of the pupils' teeth.

(5) Subject to the approval of the parents or guardians, the Board or the Committee or the local Board of Health may make the necessary arrangements for the free treatment of defects found in pupils whose parents or guardians are unable to pay therefor.

7. Duties of School Medical Officer Staffs

(1) In such of his duties as affect the general organization and management of the schools, the School Medical Officer or the Chief School Medical Officer, as the case may be, shall be subject to the authority of the School Inspector or the local Chief or Senior School Inspector or the Principal of the School, when, owing to other duties, the School Inspector is not accessible.

(2) The School Medical Officer shall supply each Principal with a copy of the time-table mutually agreed upon for each school, and when the School Medical Officer finds it impossible to be present at the time fixed by this time-table, he shall notify the Principal of the school affected.

(3) (*a*) The School Medical Officer shall from time to time make such inspection of the pupils as he may deem advisable.

(*b*) The School Medical Officer shall make a complete physical examination of every pupil as soon as practicable after his admission to the school.

(*c*) The consent in writing of the parent or guardian for such examination and for the removal of the necessary clothing must first be obtained.

(*d*) The examination in the case of females shall be made in the presence of the School Nurse.

(4) A complete physical examination shall consist of an examination of the head, eyes, ears, nose, throat, teeth and cervical glands, of the heart, lungs, spine and joints, feet, limbs and abdomen, and of the skin. The examination of the eyes and ears shall include testing for sight and hearing. The presence or absence of vaccination scars should be recorded.

(5) (*a*) The examination provided for in subsection (4) above shall deal with any new cases which may be referred to the School Medical Officer by the School Inspector, Principal, or the School Nurse, and with any other cases which a previous examination has shown to need attention, or which otherwise may come to the notice of the School Medical Officer.

(*b*) The parents or guardian shall be notified in writing of any defects found in a child.

(*c*) A home visit by the nurse shall be made as soon as possible in all cases referred to in subsection (*b*) above.

(*d*) A record of all physical examinations of the pupils shall be made by the School Medical Officer, on the reference card approved by the Minister and known as the A.D.P. Card, and such record shall be kept in the school building and shall be available at all times for the School Health staff.

(6) Where the School Medical Officer finds that the physical condition of a teacher, janitor or other person employed in a school, is dangerous to the health of others in the school, he shall forthwith report the matter to the Medical Officer of Health, and exclude the teacher, janitor or other person from the school, and such person shall not return to school until the Medical Officer of Health certifies that he may safely do so.

(7) A School Medical Officer or a School Nurse may, in case of emergency, bandage wounds and apply antiseptic dressings to cuts, wounds and bruises, as first aid only.

(8) The School Medical Officer shall give the School Inspector such assistance as he may require in organizing the special classes, and preparing the syllabuses authorized for subnormal pupils under the Public and Separate School Regulations.

(9) The School Medical Officer or the Chief School Medical Officer, as the case may be, shall make a written report to the Board or the Committee or the local Board of Health, at least once a month.

(10) At the close of each school year or at such other times as he may be called upon, the School Medical Officer shall make a report to the School Board or the Committee or the local Board of Health on the general health of the school children, and any conditions of home environment that come under his notice, that injuriously affect the health of the pupils. In such report he shall make recommendations when in his judgment action should be taken by the Board or the Committee or the local Board of Health.

(11) It shall be the duty of the School Medical Officer or the Chief School Medical Officer, as the case may be, at the close of each school year, to forward in writing to the Department of Health a report in duplicate, which shall include the local plan of organization, the amount and type of work done, the number of children in the area, and the personnel employed, with a statement of the results obtained.

8. Duties of School Nurse Staffs

(1) Where it is impossible to secure a School Medical Officer or Medical Officer of Health in charge of Medical Inspection, the School Nurse shall supply to each Principal a copy of the time-table mutually agreed upon for each school, and when the School Nurse finds it impossible to be present at the time fixed by this time-table, she shall notify the Principal of the school affected.

(2) (*a*) The School Nurse or Nurses shall make an inspection of each child as soon as practicable after admission to the school, and as often as is prescribed above, and shall report in writing to the Board or Committee, and she shall keep the records.

(*b*) The inspection shall consist of an inspection of the scalp; skin of the face, neck and hands; the mouth, throat and teeth; the joints and spine; and shall include simple tests for sight and hearing. Pulse and temperature shall be observed if necessary, and the presence or absence of vaccination scars recorded.

(3) The inspection provided for above shall deal with any new cases which may be referred to the School Nurse by the Inspector or the Principal, and any other cases which previous inspection has shown to need attention, or which may otherwise come to her notice.

(4) On completing the inspection provided for in (2) (*a*) and (*b*) above, the School Nurse shall notify the parent or guardian of the physical condition of the child.

(5) A record of all inspections of the pupils shall be made by the School Nurse on the reference card approved for this purpose by the Minister, and known as the A.D.P. Card, and such records shall be kept by the Nurse.

(6) (*a*) The School Nurse shall visit the pupils' homes as prescribed above.

(*b*) The School Nurse shall keep a written record of such visits and conferences.

(7) The School Nurse shall give the School Inspector such assistance as he may require in organizing the special classes and preparing the syllabuses authorized for subnormal pupils in the Public and Separate School Regulations.

(8) The School Nurse shall assist the School Inspector in preparing the reports required from him under 5 (1) (*c*) above, as to the results of the work.

(9) The School Nurse shall, in the absence of a School Medical Officer, forward to the Department of Health at the close of each school year, a report in duplicate which shall include the local plan of organization, the amount and type of work done, and the results of the same.

9. Duties of Dental Officer Staffs

(1) In such of his duties as affect the general organization and management of the schools, the School Dental Officer shall be subject to the authority of the School Inspector or the local Chief or Senior School Inspector, as the case may be, or of the principal of the School, when, owing to other inspectional duties, the School Inspector is not accessible.

(2) The School Dental Officer shall supply each Principal with a copy of the time-table mutually agreed upon for each school, and when the School Dental Officer finds it impossible to be present at the time fixed by this time-table, he shall notify the Principal of the School affected.

(3) Subject to the approval of the Principal, the inspection shall be made in the classroom, if no other room is available, otherwise in a suitable room or other part of the building where no other pupils are present.

(4) (*a*) Once every year and at such other times as the School Board or the Committee or the local Board of Health may direct, the School Dental Officer shall make an examination of the teeth of all the pupils attending the school or schools.

(*b*) The examination shall be made at as early a date as is practicable after the opening of school.

(5) When a member of the School Dental Officer staff reports that the teeth of a pupil require dental attention, notice of the facts shall be sent to the parent or guardian.

(6) At the close of the school year the School Dental Officer shall make a written report on the general condition of the teeth of the pupils to the School Board or the Committee or the local Board of Health. In such report he shall make recommendations when in his judgment action should be taken by the Board or the Committee or the local Board of Health.

(7) It shall be the duty of the School Dental Officer at the close of each school year to forward in writing to the Department of Health, a report in duplicate which shall include the local plan of organization, the amount and type of work done, and the result of the same.

10. Duties of Principal

(1) It shall be the duty of the Principal of the School visited by a School Medical Officer or a School Nurse or a School Dental Officer, to afford every facility for the work of Medical and Dental Inspection, and to require every pupil to submit to such inspection or examination as the Regulations prescribe.

(2) (*a*) (i) The Principal shall exclude from school any pupil who has been reported to him by the school Medical Officer or School Nurse as having symptoms of any communicable disease, and shall forthwith report the case to the Medical Officer of Health.

(ii) In other cases the Principal shall act on his own judgment, and shall immediately notify of such action the Medical Officer of Health and the School Medical Officer or School Nurse when there is one in charge.

(iii) The pupil so excluded shall not return to school until he presents to the Principal a certificate in writing signed by the Medical Officer of Health, that such attendance may safely be allowed.

(*b*) (i) When a pupil is discovered with pediculosis or with such skin diseases as itch, ringworm or impetigo, the Principal on the report of the School Medical Officer or the School Nurse that the child cannot attend school without danger to other pupils, shall immediately send the pupil home and notify the Medical Officer of Health.

(ii) A pupil so excluded shall be required to report to the School Nurse or School Medical Officer, or in the absence of these, the local Medical Officer of Health, within a period of one week for re-examination; and he shall not be readmitted until he presents to the Principal a certificate in writing signed by the Medical Officer of Health that such attendance may safely be allowed.

(3) The Principal shall confer with the School Medical Officer or family physician in regard to the physical exercises that are to be taken by the pupils whose condition demands such conference, and physical exercises for such pupils shall be outlined in writing by the School Medical Officer, if there be one, otherwise by the family physician.

(4) Subject to instructions from the School Board, or the Committee or the local Board of Health, as the case may be, the Principal shall arrange for conferences between the teachers and members of the inspectional staff to discuss school hygiene, and other matters relating to the health and well-being of the pupils.

11. Grants

(1) All grants to School Boards, provided under the Regulations of the Department for services herein mentioned, shall be apportioned and allotted by the Department of Education, upon the recommendation of the Department of Health for the Province.

These grants as at present awarded are as follows:—

An annual grant of $10.00 per classroom to every rural School Board, where the trustees have undertaken the engagement of a School Nurse who devotes her whole time to this work, either acting in conjunction with a number of other rural Boards or with the Boards of the town or village adjoining.

(2) An annual grant of $10.00 per classroom in a town or village, when the School Board of such town or village has entered into an agreement with

a number of rural School Boards for the purpose of employing a School Nurse, who shall devote her whole time to the work.

(3) An annual grant of $5.00 per classroom in a town or village where the School Nurse who devotes her whole time to the work has been appointed under the Regulations of this Department.

(4) An annual grant of $3.00 per classroom in a city of less than 200,000 population where a system of School Medical Inspection, approved by the Minister, is carried on.

(5) Every local Board of Health which inaugurates and carries on Medical and Dental Inspection of Schools, and employs at least one Public Health Nurse in such work, shall be entitled to receive an annual grant from the Department of Health of $500.00 towards the salary of such Nurse.

(6) In every municipality with a population of less than 200,000, an additional annual grant of $100.00 shall be paid towards the salary of each additional Public Health Nurse so employed.

(7) In every municipality with a population of 200,000 and upwards, an additional grant of $25.00 shall be paid towards the salary of each additional Public Health Nurse so employed.

(3)—Regulations Governing the Instruction and Management of Swimming-pools.

COPY OF AN ORDER-IN-COUNCIL APPROVED BY HIS HONOUR THE LIEUTENANT-GOVERNOR, DATED THE 9TH DAY OF JULY, A.D. 1924

(*The Ontario Gazette*, July 26th, 1924)

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the Regulations governing the construction and management of swimming pools be approved; the same to come into effect on the 1st day of June, 1924.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Regulations Governing the Construction and Management of Swimming Pools

Section 1.—These regulations shall apply to swimming pools operated in connection with any school, hospital, or educational institution, or any Y.M.C.A. or Y.W.C.A., or any athletic association, or to pools inviting public patronage, but shall not apply to baths or pools where use is restricted to therapeutic purposes.

Section 2.—The water in every swimming pool must not be artificially heated to a temperature above 72° F. The room containing the pool shall be properly ventilated, and the temperature of the air at artificially heated pools must not be permitted to become more than 8° F. warmer nor more than 2° F. colder than the water in the pool at any time, when the pool is in use except in the case of pools operated in the summer as open air pools. It is recommended that the air temperature should be 5° F. warmer than the pool temperature.

Section 3.—Provision shall be made at every such pool for the effective cleansing of the person of all bathers before entering the pool, and the use of such provision shall be compulsory. All apparatus for this purpose shall be subject to inspection, and approval of the local board of health, and no pool shall be continued in use for which the approval of the local board of health has not been obtained in writing under the signature of the Medical Officer of Health and the Inspector of such premises.

Section 4.—The number of bathers using a swimming pool during any 24-hour interval shall not exceed twenty (20) persons for each thousand gallons of clean water added to the pool during that period, and at no time shall the number of bathers exceed three (3) persons per 1,000 gallons total capacity. The term clean water as used shall be interpreted to mean new, clean water used to refill the pool; new, clean water used to replace loss by splashing or during cleaning, water taken from the pool and returned after effective filtration, or any combination of such waters.

Section 5.—At all times when the pool is in use the water shall be reasonably free from algae growths and sufficiently clear to permit a black disk six inches in diameter, on a white field, when placed at the bottom of the pool at the deepest point to be clearly visible from the sidewalks of the pool at all distances, up to ten (10) yards, measured from a line across the pool through said disk.

Section 6.—There shall be maintained in the water of all swimming pools during the bathing period, an amount of available excess chlorine not less than 0.2 parts per million, nor shall the excess be more than 0.5 parts per million, as determined colorometrically with recognized standard ortho-tolidin solution.

Section 7.—Whenever alum or sulphate of alumina are used in connection with the purification or re-purification of swimming pool waters, the water at all times, when the pool is in use, shall show an alkaline reaction to methyl red.

Section 8.—There shall be maintained in connection with every swimming pool, sanitary conveniences, located adjacent and opening into the dressing, or shower bathrooms.

Section 9.—The connection for the re-circulation of water in swimming pools shall be made at a point which will permit of effective drainage of the floor of the pool, and every pool shall be provided with a scum gutter at, or near water level, of sufficient depth to preclude re-entry of drainage, and all such gutters shall be connected through a handhole trap to a sewer.

Section 10.—The floors of all areas, adjacent to the swimming pool, shower and dressing rooms shall be effectively drained and every such floor shall be constructed of impervious material.

Section 11.—Bathing suits and towels must be washed and handled in a manner satisfactory to the local medical officer of health.

Section 12.—Each swimming pool shall be under the supervision of a responsible, and trained operator, and no bathing shall be permitted in the absence of such supervision.

Department of Health.—As will be seen by the initial item of legislation passed in 1924, a Department of Health has been established for Ontario. This marks a new era in the history of public health affairs, forty-two years having elapsed since the Provincial Board of Health was established, and the first Public Health Act passed. As the history of public health in Ontario was reviewed by the writer in the report for the year 1920, it will be unnecessary

to repeat the information contained therein. Suffice it to say that there has been steady progress made in administration since the date of the review referred to.

Medical Inspection of Schools.—Perhaps the most important step achieved in recent years is the transfer (1924) of the work of medical and dental inspection of schools from the Education Department, which initiated this work in 1919, to the Department of Health. This transfer is in accordance with the desire of the Government, that health work of all kinds shall be consolidated with a view to efficiency and economy. The legislation and the regulations concerning the school work may be found under the heading of "legislation." The plan whereby this service is proposed to be carried on in future is briefly as follows:

In places where medical and dental inspection has been established under the control of a school board, or of a school board and other local organization combined such arrangement may be continued, but where any new work of the kind is inaugurated such work will, in the future, be under the control of the local board of health, the medical officer of health will automatically become medical officer of the schools, of the municipality, and with the nurse or nurses and dental officer, will carry on the work. Under the latter plan the regulations provide for a grant of $500 towards the pay of the first nurse appointed and in case of municipalities of less than 200,000 population, $100 for each additional nurse. If the population is 200,000 or over, the grant for each additional nurse will be $25.

Biological Products and Insulin Distribution.—Herewith follows a detailed statement relative to the purchase and distribution of biological products and Insulin for the fiscal year, ending October 31st, 1924:

Factors in the Public Health Advancement.—In State Public Health Work, there are three governmental factors. These are, the governments of the Dominion, of the Province, and of the municipality. All three have important duties to perform in the prevention of disease and the promotion of public health. The Dominion Government has for years maintained a quarantine service against foreign countries; the Immigration Department exercises supervision over the physical condition of intending immigrants; the Indian Department looks after the health of the aborigines of Canada. Five years ago a Department of Health with a Minister in charge was set up, and a Dominion Council of Health comprising the executive health officer of the provinces and five others representing educational, women's, labour and agricultural interests established in an advisory capacity. Further than this, the Department issues literature on various public health subjects, and for the last five years has afforded a grant of $200,000 to the provinces for the control of venereal diseases.

In Ontario, the Department's organization for the supervision of the public health work is satisfactory, and may truthfully be said to be equal to that of any other state or country. It must be remembered, however, that the Government department can at best only guide and direct. The real, intensive public health work must, as has frequently been pointed out, be carried on by the local community and by the people themselves in their homes and as individuals.

The defect in our municipal system of local health administration is that the municipality, such as a small town, village or township, is financially unable to bear the burden of an efficient health organization. There are upwards of 900 municipalities in Ontario. In but eight of these is there a full-time health officer. This official in all the other municipalities is a practising physician who gives more or less of his time to the public health work of his municipality.

In the smaller towns, villages and rural areas, he is paid, and often grudgingly paid, but a trifle for his services. Many of the municipal authorities seem to have the idea that the services of the medical officer of health consist of putting up placards in cases of communicable disease, and fumigating premises after the disease has subsided. The time and expenses of the medical officer of health who does this work is, to a large extent, wasted. Placarding of premises should be done by a cheaper type of official than a physician, and the same is true of fumigation of premises, which is rarely necessary. The trained medical officer of health knows a dozen other ways in which he can be of much more value to his community, in, for example, the promotion of pre-natal clinics, the discovery of early cases of tuberculosis, in supervision of the milk supplies, of water supplies, in medical inspection of schools, etc. While many of the part-time medical officers of health do render service of a high value to their respective municipalities, such men have had some training in their duties; but invariably services of the kind are rendered to the prejudice of their own interests and the injury of their private practice. Most of the part-time medical officers of health have had no training of any consequence in sanitary work and their remuneration fails to compensate for the disabilities which the assumption of the duties of such an office entails. Practice of medicine is their vocation, their means of livelihood. The work of preventive medicine is naturally a very much secondary consideration with the average medical practitioner.

The taxpayer objects to the expenditure of public money unless he can see a reasonable prospect of return. It is difficult for him to see the value of public health measures. It is not difficult for the professional health worker to see these things. They are examples in his daily experience. Until the taxpayer learns to appreciate the financial value of public health measures, reform in our present local health administration will be slow of growth.

As already pointed out the smaller municipalities are not financially able to bear the burden of a full-time organization. Under such circumstances the obvious thing to do is to consolidate under one efficient administration, a sufficient number of municipalities, the combined funds of which would be used for health purposes. This is exactly what is going on in Great Britain and in the United States. In the former country, where the population is much denser than in Ontario, the unit for health purposes is called the "combined area," this being a county or part of a county with the contained towns and villages. The area so established receives from the Government one-half the salary paid the medical officer of health, whose qualifications must be approved by the Ministry of Health. In the United States, the plan is known as the County Health Officer system, the unit being usually the county. The plan is being rapidly developed in England, Scotland and Wales. In the United States there was but one County Health Officer in 1908. There are now (1924) 260.

In order to educate the public in the value of a full-time health service, no plan seems to be better than to set up a few "demonstration areas" as examples of how the work can be carried on. A moderate-sized county or a small city, with or without the inclusion of adjacent suburban areas, or a few townships might be utilized for this purpose. It would seem an advantage that such areas should receive government support for a reasonable period of say five years. During this time the "demonstration areas" would have afforded a working example to the rest of the Province, its success would stimulate other groups to enter the movement and the advantages shown by this plan would be likely to cause a spread of the plan all over the Province. Without the provision for demonstration of the kind as a means of education, it is improbable that the

"combined areas" plan will voluntarily be adopted with any degree of rapidity, unless the municipal authorities are educated to appreciate the economy, increased efficiency, and good results of such a plan.

ANNUAL REPORT FOR 1924, DIVISION OF PREVENTABLE DISEASES.

DR. R. R. MCCLENAHAN, D.P.H., DIRECTOR.

I have the honour to submit the following report of the work done by the Division of Preventable Diseases for the year ending December, 1924.

1. *Field of Activities.*

Before going on with the report in detail it is perhaps advisable to refer briefly and in a general way to the work carried on by the Division during the year. Reference was made in the report of last year to a broadening in the scope of work and it takes but a brief glance at the reports of former years to show how the field has enlarged and the activities of the Division expanded. Particular reference should be made I think in this connection to the travelling Diagnostic Chest Clinic which was organized by the Provincial Board last year. There is no question but that the establishment of this clinic has been a success, and physicians in many parts of the Province have been only too glad to have their cases brought up for examination and consultation.

Under the heading "Investigations" will be found epidemics of communicable diseases in the control of which, and in co-operation with the District Officers of Health and local authorities, the Division took an active part. The greatest of these epidemics was the smallpox outbreak at Windsor, as the result of which almost the entire population in that section of the country was vaccinated.

The efforts of the Provincial Board in connection with the treatment and control of the venereal diseases still constitute the major part of the work of the Division. No new Venereal Disease Clinics were formed during the year though there has been an increase in the number for treatments given in those now in operation. The educational programme carried out by the Social Service Department along the lines of social hygienics was much greater than last year and a great deal of interest was shown by the public at large in this particular line of work.

2. *Personnel.*

Changes occurred in the personnel of the Division during 1924. Towards the latter part of the year, Dr. Charles P. Fenwick, Clinician, and Miss Edna Moore, Social Service Nurse, resigned the service to take up appointments elsewhere. The Division now has a director, three clinicians, one nurse and two stenographers.

3. *Finance.*

The amount of money available for the work of the Division during the year was $186,621.83, of which $60,171.83 was advanced by the Dominion Government.

4. *Diagnosis.*

(a) *Reported by Physicians.*

The number of cases and deaths from communicable diseases reported by physicians during the year is shown in the following along with the totals for 1923:

CASES AND DEATHS FROM COMMUNICABLE DISEASES

Reported Weekly by Local Boards of Health for Year, 1924

Date	Smallpox		Scarlet Fever		Diphtheria		Measles		Whooping Cough		Typhoid		Tuberculosis		Infantile Paralysis		Cerebro-Spina Meningitis		Influenza		Acute Primary Pneumonia		Syphilis		Gonorrhoea		Chancroid		Chickenpox		Dysentery		Encephalitis Lethargica		German Measles		Mumps		Paratyphoid Fever		Septic Sore Throat		Tetanus		Goitre	
1924	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Deaths		Cases	Deaths	Cases	Deaths	Cases.	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
January	50	0	870	13	318	25	1222	7	181	6	38	5	172	89	0	0	1	1	20	6	218	113	..	142	..	11	..	971	..	..	..	5	3	21	..	627	..	..	..	14	1	..	2	2	1
February	125	14	940	10	294	38	1914	4	202	5	23	3	145	101	0	0	2	1	39	15	180	101	..	108	..	4	..	600	..	..	..	1	..	29	..	787	..	..	..	8	..	..	..	6	4
March	166	28	1134	28	250	25	2811	8	140	10	25	2	155	100	0	0	9	7	44	21	251	215	..	199	..	1	..	504	..	..	..	5	4	191	1	1578	2	..	..	5	1	..	..	13	3
April	49	3	691	12	188	20	3209	4	140	4	34	7	180	93	0	0	6	2	..	14	232	118	..	98	..	..	..	398	..	..	..	9	6	190	..	1009	..	..	..	8	1	..	..	16	3
May	32	2	659	8	270	26	4577	13	141	4	56	2	217	105	0	0	9	8	..	14	188	115	..	75	..	5	..	350	..	..	..	3	3	171	..	978	..	..	..	5	1	..	..	2	1
June	24	0	510	14	227	12	4321	12	104	3	47	1	162	89	0	0	9	5	9	6	149	96	..	133	..	3	..	265	..	..	..	1	1	50	..	739	..	..	..	..	..	..	..	1	1
July	7	0	267	3	220	12	1645	8	109	4	77	4	137	60	0	0	2	1	..	2	68	45	..	124	..	..	..	179	..	..	..	1	1	28	..	141	1	..	..	..	..	..	..	..	..
August	6	0	339	7	269	16	879	3	300	4	120	8	156	74	3	0	9	5	18	3	45	121	..	175	..	1	..	175	..	..	..	1	1	15	..	180	..	2	..	3	..	..	2	61	..
September	13	0	195	1	183	6	233	0	225	5	114	13	119	61	35	2	7	7	6	1	82	85	..	175	..	..	..	106	..	..	8	5	5	6	..	100	..	3	..	6	..	..	2	..	..
October	73	0	397	3	396	24	887	0	174	3	125	8	166	73	20	3	7	6	..	4	137	85	..	146	..	2	..	324	..	..	6	4	2	2	..	307	..	..	..	1	..	..	2	..	..
November	21	0	736	10	494	39	1034	4	488	5	89	11	165	63	20	2	10	8	..	8	153	142	..	191	..	3	..	1076	..	..	..	1	1	44	..	641	..	..	..	..	..	..	..	..	..
December	33	0	618	9	364	27	1363	2	279	3	85	12	123	64	6	1	3	4	..	13	115	95	..	119	..	..	..	852	..	..	..	10	3	11	..	582	..	..	..	5	..	..	2	44	3
Total	599	47	7354	118	3473	268	24095	65	2483	56	833	76	1897	972	84	8	74	55	..	107	1818	1331	..	1695	..	30	..	5791	..	..	14	46	30	858	1	7669	3	5	..	55	4	..	10	145	16
1923	353	0	501	13	2935	241	10843	70	3205	181	1663	212	2150	1313	19	10	64	59	..	874	2959	1699	..	1992	..	43	..	....	..	..	..	..	..	...	..	....	..	..	..	..	..	..	..	...	..
1922	977	6	3950	111	3529	410	8950	40	1691	90	576	127	2078	1442	205	25	71	64	..	...	2559	2136	..	2270	..	39	..	....	..	..	..	..	..	...	..	....	..	..	..	..	..	..	..	...	..

(*d*) Clinical Office Work.

In addition to the treatments given in the various Government institutions and the numerous trips that are taken for the purpose of intravenous demonstration and consultation by the Venereal Disease Clinicians, a great deal of work is being done by them in connection with men and women who are continually coming to the office of the Division for advice and, if necessary, treatment as to their condition.

The following is a brief summary of the work done:—

Total number of office consultations		540
Number of Wassermans taken		90
No. positive	23	
No. negative	67	
No. of G. C. smears taken		99
No. positive	66	
No. negative	33	
Number of dark field examinations		10
No. positive	4	
No. negative	6	
Number of urine-analysis		27
Number of treatments		160
Number of advice as to treatment		154

This is a substantial increase over 1923 when the figures were:—

Total number of office consultation		339
Number of Wassermans taken		58
No. positive	18	
No. negative	40	
Number of G. C. smears taken		90
No. positive	61	
No. negative	40	
Number of treatments given		102

5. *Treatment of the Venereal Diseases.*

(*a*) Clinics.

As stated above the number of clinics for the free treatment of venereal diseases throughout the Province still stands at eighteen.

The grand total of treatments given in all clinics during the year was, 101,856 as against 84,981 in 1923. Attached will be found the treatments given in each clinic in 1924.

Concerning the work being carried on in the clinics the following figures are of interest:—

There were 2,285 new admissions to the clinics in 1924 subdivided as follows:

Syphilis		932
Males	526	
Females	406	
Gonorrhoea		1,353
Males	914	
Females	439	

Number of inpatients treated in hospitals where there are venereal disease clinics was 1,776:—

Adults				Children			
V.D.S.		V.D.G.		V.D.S.		V.D.G.	
Male	Female	Male	Female	Male	Female	Male	Female
581	406	396	291	24	30	6	42

Total outpatients under treatment:—

V.D.B.			V.D.G.		
Male	Female	Total	Male	Female	Total
1,713	1,340	3,053	1,353	737	2,110

Grand total.....5,163

DISCHARGES

V.D.S.						V.D.G.					
Cured		Lost		Transferred		Cured		Lost		Transferred	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
118	107	283	168	216	183	362	134	359	129	155	101
Total.....225		Total..451		Total...399		Total.. 496		Total...488		Total...256	

TREATMENTS, 1924

	Outpatients				Inpatients			
	Male		Female		Male		Female	
Clinic	G.C.	V.D.S.	G.C.	V.D.S.	G.C.	V.D.S.	G.C.	V.D.S.
Toronto General Hospital	3,618	6,003	494	3,706	1,057	3,446	2,446	2,178
St. Michael's Hospital	3,034	3,128	762	2,958	846	1,258	307	607
Western	7,372	968	89	351	560	368	318	143
Women's College	..	..	1,804	652	..	..	759	262
Grace Hospital	716	971	441	1,684	72	178	65	336
Sick Children's Hospital	54	1,212	1,056	1,348	36	171	94	214
Hamilton General Hospital	748	1,269	498	1,026	418	836	699	200
Brantford General Hospital	282	355	329	139	161	183	184	33
Victoria Hospital, London	2,775	328	369	271	443	315	698	415
Windsor	2,972	2,001	1,453	1,577	outpa	tients	treatm	ents
Owen Sound	1,171	222	409	117	outpa	tients	treatm	ents
Ottawa	5,128	1,789	502	1,317	138	814	258	481
Fort William	305	432	288	282	519	490	283	140
St. Catharines	216	429	214	344	58	5	14	66
Kingston General Hospital	1,110	260	566	206	718	77	1,520	185
Peterboro	158	96	124	25	outpa	tients	only	
Sault Ste. Marie	337	330	130	351	outpa	tients	only	
North Bay	0	32	36	45	outpa	tients	only	
	29,996	19,825	9,564	16,399	5,026	8,141	7,645	5,260
	Total..... 75,784				Total..... 26,072			

Grand Total..... 101,856

The Division made seventy-two inspections of the Toronto clinics and forty-five inspections of outside clinics during the year. Two hundred and ninety-eight biological tests for phenarsenamine and mercury salicylate were carried out during the year.

(*b*) Treatment in Smaller Centres.

Thirty-four trips were made by the V.D. Clinicians during the year for consultation and demonstration of anti-syphilitic treatment to physicians in smaller towns where no clinic is situated. The following are the places visited:—

Gananoque	Hawkesbury	Trenton	Tavistock
London	Montreal	Belleville	Uxbridge
Thedford	Belleville	Everett	Wellington
Belleville	Palmerston	Stouffville	Cincinnati
Gravenhurst	Blind River	Guelph	Brantford
Meaford	Niagara Falls	Niagara Falls	Elgin
Teeswater	Cripler	Brampton	Packland
Georgetown	Chatham	Orillia	
Coniston	Waubashene	Hillsburg	

(*c*) Institutions.

The Division still makes weekly trips to Guelph Reformatory and the Mercer Reformatory for the purpose of treating the infected inmates. Occasional trips are made to the Industrial Farm, Burwash and Victoria Industrial School, Mimico. Treatment is supervised and the Provincial Board of Health products used at the Men's and Women's Farm, Concord. The following figures show the amount of work done in these Institutions by the Medical Officers and Clinicians of this Division:—

Institutions	No. of Visits	V.D.S. Treatments	V.D.G. Treatments	Wassermann
Industrial Farm, Burwash	3	624	10,198	992
Ontario Reformatory, Guelph	48	550	1,450	809
Mercer Reformatory	49	905	1,711	498
Men's Farm	....	371	310	†1,374
Women's Farm	....	*385	1,023	149
Victoria Industrial School	7	28	....	78
Total	107	*2,863	*14,692	3,900

*Mercury. †Irrigations.

The extent of venereal disease among the inmates of Burwash, Guelph and the Mercer Reformatory in 1924 is shown below with figures and percentage for 1923 and 1922:—

		1924	1923	1922
Burwash—	No. of admissions	1,078	709	746
	No. of V.D.S. cases	61	34	90
	No. of V.D.G. cases	55	43	37
	Per cent. syphilis	5.6%	4.8%	12%
	Per cent. gonorrhoea	5.1%	6%	5%
Guelph—				
	No. of admissions	748	734	960
	No. of V.D.S. cases	42	63	78
	No. of V.D.G. cases	14	37	66
	Per cent. syphilis	5.61%	8.58%	8.1%
	Per cent. gonorrhoea	1.87%	5.04%	6.3%
Mercer—				
	No. of admissions	164	167	137
	No. of V.D.S. cases (Inc. D.I.)	58	62	48
	No. of V.D.G. cases (Inc. D.I.)	46	68	65
	No. of double infections	20	36	24
	Per cent. of V.D.S.	43%	37.1%	36%
	Per cent. of V.D.G.	35%	40.07%	47%

(*d*) Manufacture and Distribution of Phenarsenamine and Mercury Salicylate.

The Provincial Board still continues to manufacture and distribute Phenarsenamine and Mercury Salicylate and it is anticipated that sometime during 1925 the manufacture of some of the Bismuth preparations will be proceeded with.

The following table shows the distribution of Phenarsenamine and Mercury Salicylate:—

DISTRIBUTION OF PRODUCTS MANUFACTURED BY PHENARSENAMINE LABORATORY

FROM JANUARY 1ST TO DECEMBER 31ST, 1924

	Phenarsenamine		Mercury Salicylate		Sodium Hydroxide 15%		Sterile Distilled Water	Silver Nitrate
	Ampoules	Grams	Ampoules	Grains	Ampoules	Ounces	Ounces	Ampoules
SUPPLIED FREE IN ONTARIO:								
To Ontario Government Institutions	1,893	551.4	1,147	2,759	3	179	18,050	.....
To V.D. Clinics and Medical Officers of Health in Ontario	9,744	6,857.1	6,202	9,756	483	1,105	5,148	.....
To Physicians and Hospitals in Ontario	.....	.....	.....	.....	.....	.....	.....	24,360
SOLD:								
To other Provinces	1,000	600.0	720	720	.....	.....	.....	.....
Total Distribution	12,637	8,008.5	8,069	13,235	486	1,284	23,198	24,360

6. *Investigations:*

(*a*) Travelling Diagnostic Chest Clinic.

The first work of primary importance undertaken by this branch of the Division after its inception was in connection with the survey of school and pre-school children in the Dundas and West Flamboro area. Only a brief reference was made to the survey in last year's report as sufficient material was not then to hand, but as the report of the Committee has now been assembled it is possible and thought advisable to refer to this matter at greater length, not only as far as the tuberculosis work is concerned, but also that of the non-tubercular.

The survey was carried on under the auspices of the Canadian Tuberculosis Association and the Canadian Red Cross Society, assisted by the Hamilton Medical Society and with the active co-operation of the Provincial Board of Health. It had for some of its objectives the following:—

(*a*) The desirability of attaining accurate information as to the extent to which tuberculosis is to be found among the children of Canada.

(*b*) The age at which children are mostly liable to become infected with the germ of this disease.

(*c*) The taking of such a survey in each Province would stimulate interest on the part of the physician and the general public in matters relating to the prevention of tuberculosis.

Results of the survey are summarized under the following heads:—

(*a*) Examining Staff.

Besides the local and central committees there were twenty-six general examiners, and seven eye, ear, nose and throat specialists employed.

(*b*) Schools with number of pupils examined:—

Dundas Public School	664	children
Dundas Separate School	110	"
Dundas High School	155	"
Millgrove Public School	66	"
Freelton Public School	64	"
Strabane Public School	38	"
Greensville Public School	66	"
West Flamboro	25	"
Governor's Road Public School	18	"
Glenwood Public School	14	"
S.S. 3, East and West Flamboro	52	"
S.S. 2, West Flamboro	25	"
Pre-school in Dundas	85	"
Miscellaneous	11	"
	1,394	children

(*c*) Over one thousand children were X-rayed and 1,321 intracutaneous tests were done.

(*d*) Summary of Non-Tubercular Defects:

465 children or 33 per cent. were seven per cent. or more under normal weight for their height and age; 250 children or 18 per cent. were ten per cent. or more under normal weight for their height and age.

504 children or 36 per cent. showed lymphatic gland enlargement.

120 children or 9 per cent. showed definite defective vision, while 141 additional children or 10 per cent. showed slight defective vision.

28 children or 2 per cent. had defective hearing; 24 or 2 per cent. had otitis media.

280 children or 20 per cent. were considered to have tonsils diseased, or diseased and enlarged; 201 children or 14 per cent. had already had tonsils removed but these were not included as defects in our summary.

324 children or 23 per cent. had definitely enlarged adenoids. Of this number, 277 or 20 per cent. were definite mouth breathers; 39 children or 3 per cent. were reported as having an enlarged heart. In 42 children or 3 per cent. heart murmurs were heard.

603 children or 43 per cent. had not been vaccinated.

(*e*) Summary of Tubercular Infection:

426 children or 32 per cent. gave positive tubercular reaction; 14 children or about 1 per cent. were classified as having active pulmonary disease.

In addition to the above survey a great deal of work was done by this branch of the Division in connection with the organization of Tuberculosis Clinics in various centres throughout the Province. Trips were made for this purpose to the following places:—

Wingham	London	Belleville	Haliburton
Guelph	Clinton	Trenton	Lindsay
Stratford	Brockville	Ottawa	Kingston
St. Mary's	Oshawa	Bancroft	

Below will be found a list of places visited by the Travelling Diagnostic Clinic with number of cases examined:—

Place	Cases Examined
Clinton	18
Picton	20
Hawkesbury	12
Rockland	14
Renfrew	14
Pembroke	14
Alexandria	60
Stratford	52
Schreiber	20
Port Arthur	28
Fort William	38
Fort Francis	18
Rainy River	15
Dryden	16
Oshawa	52
Coburg	17
Total	408

One hundred and thirty-one physicians referred these cases to the Clinic and the following is a classified report as to the findings:—

Cases in which pulmonary tuberculosis was not considered a factor, 194.
Cases that were considered suspicious and requiring further observation, 66.
Cases showing active pulmonary tuberculosis, 61.
Cases in which the disease was thought to be arrested, 44.
Cases showing cervical tuberculosis adenitis, 2.
Cases showing bronchitis and emphysema, 16.
Cases showing asthma, 5.
Cases of lung abscess, 6.
Cases of bronchiectasis, 8.
Cases of chronic empyema, 3.
Cases of siliessis, 2.
Unclassified cases, 1.

(*b*) *Smallpox:*

(1) Windsor Epidemic.

The following is a summary of the report of the epidemic handed in by the Board's Clinician who co-operated with the local authorities in the investigation of this outbreak.

The recent epidemic of smallpox in Windsor and vicinity has been of a particularly virulent type. The symptoms have been so irregular in character that some of the lessons learned may be of interest to the medical profession generally, and especially to medical officers of health.

History of the Epidemic.

The facts concerning the epidemic are briefly as follows:—

A mild epidemic of smallpox had been present in Detroit for the past three or four months. Owing to the proximity of the Border Cities, it was inevitable that cases of smallpox should appear in Windsor and other neighbouring municipalities in Ontario. Some cases developed as expected in the Border Cities but they were of a mild character, occasioned no alarm, and were promptly dealt with by the Health Department. An epidemic of malignant smallpox, however, broke out in Windsor about the middle of February following the death of a man suffering from an irregular type of haemorrhagic smallpox. This man, during his illness, was seen by several medical men of the highest reputation, but no one believed that the patient was suffering from a communicable disease. During his illness the man was visited by many friends and relatives and when death occurred his funeral was very largely attended. It was only when cases occurred in persons who had been in contact with this man that the diagnosis of smallpox was definitely made. These cases were of a particularly virulent and irregular type.

Number of Cases and Deaths.

The number of cases of smallpox in Windsor up to March 3rd was over 40, while the number of deaths was 12. The total number of cases in Windsor, Amherstburg, Maidstone and surrounding districts from the middle of February to March 3rd was 60, the total number of deaths in these places was 18. The total number of cases apparently due to the undiagnosed case of smallpox had reached 42.

Source of Infection of Original Case.

It has so far been impossible to determine the source of the infection of the original undiagnosed case. It may have been a mild type from the Detroit epidemic which suddenly took a particularly virulent form, or possibly an unrecognized case from the northern part of the Province where irregular types of smallpox are often seen. Whatever its source, the cases have all been of a very virulent form with a very high mortality.

Interesting Points.

The following points are of interest in connection with the epidemic:—

1. The first unrecognized case undoubtedly was one where there had been a sudden increased virulence in the type of the disease. It is probable that this was due to the fact that the person affected had never been vaccinated. As is well known, this has been predicted by medical men who believe that a mild type of smallpox was at any time likely to become more severe in character in an unvaccinated population.

2. The irregular character of the prodromal symptoms and of the rash.

Some of the cases gave no history of backache which is a common symptom; others complained of very severe pain in the back and were only relieved by extremely large doses of morphine, hypodermically. Some cases complained of severe headaches. All had moderately high fever and vomiting. Sore throat was a frequent symptom. The cases may be divided into three groups.

(*a*) Mild cases in individuals with a history of an old successful vaccination over twelve years ago, also an occasional unvaccinated case infected in Detroit.

(*b*) Severe semi-confluent and confluent cases—all in unvaccinated persons —some of these cases already have died and others are seriously ill. These cases live as a rule six to eight days and if they survive that length of time, recover.

(*c*) Haemorrhagic cases—these were all in unvaccinated persons and were all fatal. These cases were difficult to diagnose even with the information that an epidemic of severe smallpox was present. Some were at first diagnosed as appendicitis, others stone in the kidney and still others, scarlet fever and measles. Some of the haemorrhagic cases showed a typical "Lobster rash" as mentioned by Ker in his book on Infectious Diseases, others somewhat resembled the rash of scarlet fever though it was of a more dusky character and no other symptoms of scarlet fever were present. Still others showed a rash like measles but the other symptoms of measles such as dry cough, running eyes, and cold in the head, were absent.

All of these rashes were of course, prodromal rashes and in many cases the true smallpox rash was not seen owing to the patient's early death. Haemorrhage into the conjunctivae was a common symptom in these cases, also haemorrhages from the mouth, bowel and bladder as well as haemorrhages under the skin.

3. Severity of the epidemic and the value of vaccination.

The Medical Officer of Health of the Border Cities says, "this is the most severe epidemic of smallpox in Canada since the 1885 Montreal epidemic and the deaths among the unvaccinated persons suffering from the disease will run fifty per cent." He also says, "the value of vaccination as a means of prevention has been proved as never before."

4. Compulsory vaccination of school children.

The value of a by-law providing for compulsory vaccination of school children on entering school was shown and undoubtedly in this epidemic prevented the spread of the disease among children.

5. Vaccination of the general public.

The severity of the disease and the high mortality rate rendered it possible to vaccinate a large proportion of the population of the Border Cities. Roughly, two thirds of the population of the Border Cities, or 50,000 people, were vaccinated during the last week of February. There has probably never been a city which has been able to accomplish such a feat without the use of compulsory methods. The severity of the disease and the confidence of the people in the local health authorities undoubtedly made this possible.

Action by Local Boards of Health.

Local Boards of Health are urged to adopt the following measures whether smallpox is present in the municipality or not:—

(*a*) Urge general vaccination of the public.

(*b*) Have the local Board of Health require compulsory vaccination of all school children before admission to school. (See Vaccination Act, Sec. 13.)

(*c*) Notify medical practitioners to be on the watch for irregular cases of smallpox (especially cases of the haemorrhagic type).

(*d*) Arrange for a supply of free smallpox vaccine from the Provincial Board of Health.

2. *Whitney Epidemic:*

The Division was called upon to deal directly with an outbreak of smallpox which occurred in Whitney in October, 1924. Two trips were made to the village which is in unorganized territory, and every house in the place and for eight miles around was visited. About thirty cases of smallpox were found, nearly all of them being of a mild type. A total of 237 people were vaccinated, including the pupils of three schools. A Public Health Nurse was sent into the District to take over the situation and a local Sanitary Inspector was appointed temporarily to enforce quarantine and the placarding of the houses where cases occurred.

Many cases of scabies, impetigo, contagiosa and eczema were discovered and treatment was instituted in all cases. This treatment was watched and followed up by the Public Health Nurse who remained for several weeks in the vicinity.

(*c*) *Typhoid Fever:*

The Division was called upon to assist in the investigation of outbreaks of typhoid fever as follows:—

(1) Ontario Hospital, Toronto.
(2) Ontario Hospital, London.

(1) *Ontario Hospital, Toronto.*

Five cases of the disease occurred in this institution and an endeavour was made to locate the source of the infection. One hundred and seven Widal tests were carried out on all patients, nurses and attendants in the wards concerned, as well as the kitchen staff and food handlers. Six of these showed a typical reaction and a urine and faeces test was then done on these latter. One came back positive and the case was isolated and put under treatment.

(2) *Ontario Hospital, London.*

In the latter part of September three cases of typhoid fever developed at the Ontario Hospital, London. The Division was called in consultation *re* the locating the source of infection by Dr. McNally, D.O.H. Two of the clinicians from the Division were engaged in this work and the following is a brief summary of their report:—

On thorough investigation it was concluded that carriers were the source of the infection and a determined effort was made to locate these individuals, keep them isolated, treated with intestinal antiseptics until these were pronounced free from baccillus typhosus in their discharges. All the nurses, attendants, patients with previous history of typhoid, and those patients in direct contact with the three cases of typhoid were tested by the Widal reaction. A total of 312 Widal tests were made and examined by the laboratories at London and Toronto. Of these 312 Widal sixty-one were found to be positive and 251 were negative. Of these sixty-one patients with positive Widals, urine and faeces examinations were made and repeated for the detection of bacillus

typhosus. A total of 148 such tests were made and five cases were found to be carriers. These cases were isolated and treated with intestinal antiseptics. Recommendations were made also, and acted upon, to rid the kitchen of flies, and the possibility of doing away with the common roller towels in the wards, as with this type of patient it was difficult to enforce proper hygiene measures. No further cases of typhoid developed in the institution.

(*d*) *Milk Supplies:*

Dairies and the general handling of milk supplies were inspected in the following town:—

BOWMANVILLE.

(*e*) *Goitre.*

Relative to the treatment and prevention of goitre the Provincial Board has approved the proposal to add .01 per cent. potassium iodide or sodium iodide to domestic salt. All the salt manufacturing firms in Ontario have been so notified.

7. *Social Service:*

(*a*) Follow-up Work:—

(1) Letters.
(2) Returns of Death from Syphilis.
(3) Sources of Infection and Contacts.

(*b*) Educational.

(*a*) Follow-up Work:—

(1) Letters.

During the year letters were received concerning approximately 400 persons suffering from venereal diseases. For many of these, arrangements were made for their treatment to be carried on in near-by clinics or by local medical officers of health.

(2) Returns of Death from Syphilis:—

Still-born, 3.
2 cases, mother under treatment.
1 case, parents not located.

Congenital Syphilis, 17.
3 cases, mother under treatment.
2 cases, unable to locate parents.
8 cases, under investigation.
2 cases, mother under treatment, father negative.
1 case, parents under treatment.
1 case, father under treatment.

Acquired Syphilis, 31.
20 cases under investigation.
4 cases, diagnosis doubtful.
4 cases, no contacts.
1 case, contacts negative.
1 case, father and son under treatment.
1 case, four children negative.

(3) Sources of Infection and Contacts.

The following figures are interesting, as showing the work done by Social Service Nurses in following up contacts and sources of infection.

Referred by—

Self, 377; Health Department, 311; hospitals, 206; other clinics, 156; doctors, 489; social agencies, 81; friend, 312; films, etc., 18; Government posters, 35; exhibits, 21; gaols, 67; police, 93.

Alleged Sources of Infection Investigated—

Syphilis—positive, 142; negative, 97; total, 239. Gonorrhoea, positive, 121; negative, 53; total 174. Grand total, 413.

Number contacts located—

Syphilis—positive, 113; negative, 336; total, 476. Gonorrhoea—positive, 73; negative, 110; total, 183. Grand total, 659.

Visits by Social Service Nurses, 7,890.

Number of patients lost, 852.

(*b*) *Educational.*

Educational work was carried on very extensively during 1924 by means of moving pictures, films, exhibits, lectures and the distribution of literature. The following is a summary of the work done by the Social Service Nurse in this connection—

Out-of-town trips, 44.
Visits to out-of-town clinics, 20.
Number of times films shown, 168.
Attendance at showings, 27,112.
Other meetings, 30.

Special exhibits illustrating work of the Division were held at Canadian National Exhibition, Toronto, Peterborough, Sault Ste. Marie, Brantford, Hamilton, Ottawa.

Letters for the year:—
Incoming letters, 4,073; Outgoing letters, 3,383. Total, 7,456.

I wish to thank the members of the Division for the cheerful co-operation given during the year and the clerical staff for the able manner in which they assisted in carrying on the routine office work of the Division.

ANNUAL REPORT, 1924, TO THE DEPARTMENT OF HEALTH FROM THE DIVISION OF INDUSTRIAL HYGIENE.

J. Grant Cunningham, M.D., D.P.H., Director.

The prevention of disability among wage earners is the objective of the Division of Industrial Hygiene.

Prevention involves, first, the dissemination of information bearing on the costly waste resulting from disability; and, second, the stimulation of means to cut down this waste.

In the United States the accredited means is the establishment of industrial health service in plants and there are signs that the American system is spreading to Great Britain, supplementing the system there which hitherto has confined

itself to legislation and the efforts of lay and medical factory inspection. In addition to the establishment of industrial health services in plants, clinical and laboratory facilities for research into specific health problems in industry are necessary.

Along these two lines, dissemination of information as to the extent of disability and stimulation of efforts to cut down disability, it is considered that a satisfactory beginning has been made.

Increasing interest and activity among employers and employees is manifested in the following ways:—

(1) The number and type of inquiries received by the Division on problems affecting the health of the workers; for example,

(*a*) Request that the Division measure the amount of lead in air in order that additional cases of lead poisoning may be prevented.

(*b*) Request that the Division measure the amount of benzol in air with a view to determining whether present preventive measures are adequate.

(*c*) Request that the Division study plant conditions, including ventilation, with a view to reducing the lost time from colds and other respiratory diseases.

(*d*) Inquiry as to details for the development of industrial health service in a rubber plant and in two pulp and paper plants.

(*e*) Inquiry as to means of prevention of a skin disease which appeared in artificial silk manufacture.

(*f*) Inquiry into the effect on health of the use of second-hand material in mattress manufacture.

(2) Increase in the number of plants recording lost time from sickness: These records are of first importance for they constitute a starting point from which to do effective preventive work. It is impossible to prevent sickness unless the types of sickness occurring and the kinds of work which the men do are known.

Six plants have supplied the Division with records of sickness occurring in their plants during the past year.

There is gradually being accumulated in Ontario a record of sickness, experience in industry which has not existed previously. This avoids the need of turning to other countries for such experience and provides data having considerable more weight with industrial executives.

(3) To an increasing extent prevention of sickness among wage earners is being discussed in manufacturers' and trade journals and in labour papers.

(4) The number of nurses employed in industry is steadily increasing. Their most striking contribution lies in the reduction of infection of industrial injuries, but even here the reduction of ninety per cent. in both the number of cases and lost time from infection is not accomplished without sufficient interest on the part of employer and employees to see that every case of injury reaches the dispensary at once.

This Division has co-operated with the Child Welfare Division in demonstration given in municipalities having one industry as the centre of activity. These demonstrations have resulted in the employment of nurses at two points in the last year to do combined industrial and community nursing.

(5) There has been an increase in the number of physicians associated with industry. While the great majority of physicians still only come into

touch with industry when they are called to treat a worker injured during his employment, yet there is an increase in the number of physicians who are employed on a part-time basis, with some responsibility for health work done in the plant and with corresponding opportunity to apply the principles of preventive medicine in the maintenance of the health of workers. They may be employed as physicians to plant benefit societies, where on account of records kept reduction in lost time from sickness is at once apparent; or as part of a definite programme instituted by industrial executives for the prevention of sickness, entirely apart from its treatment. The latter is a much more satisfactory arrangement.

An encouraging feature is the fact that a few physicians not directly connected with any plant have submitted problems which they have noted as appearing among a group of private patients presenting similar symptoms, a common factor being their work.

Physicians coming in touch with industrial workers have submitted to the Division during the year such requests for information or help on the following points:—

(*a*) The hazards of electric welding.

(*b*) Infection of wounds in abattoirs.

(*c*) Details for the method of introducing and conducting periodic physical examination of workers.

(d) Inquiry into the cause and means of prevention of a skin disease occurring among fishermen on Lake Erie and associated with fish slime. Bacteriological examination has produced some interesting results which are not yet completed.

(*e*) Request for the special examination of blood smears taken from men exposed to lead.

(*f*) Request for the examination of men exposed to silica dust in quarrying to determine the presence or absence of silicosis.

Industrial Health Education

The Division has prepared and published articles for various journals and papers, technical and popular, dealing with different phases of the subject. Examples of titles with their distribution follow:—

"Industrial Hygiene," a general article published in Social Welfare.

"What Is Being Done for the Worker's Health," published in a labour paper.

"Lost Time from Sickness," published in Industrial Canada, the Canadian Manufacturers' Association journal.

"Industrial Hygiene and the Medical Profession," published in the Canadian Public Health journal.

"Cancer as an Industrial Disease," published in the Toronto Star Weekly.

"Fatigue and Industrial Accidents," published in the Y.M.C.A. Bulletin.

Articles on different phases of the subject for use in the Wilson publications covering over two hundred newspapers in Ontario and appearing weekly.

The publication entitled "Health Confession of Business Women," by Business Women, has been well received. It has been favourably reviewed in Canada, England, and the United States. Over 12,000 copies have been distributed during the past year and requests are still coming in steadily.

This part of the Division's work, in addition, concerns itself with summaries of the literature on various health questions submitted, such as a review of

recent literature on paint hazards, a list of topics suitable for health articles in plant papers, memorandum on the health hazards involved in wallpaper manufacture; and with the study of problems affecting the work of the Division itself; for example, workmen's compensation and insurance in Canada and the United States in its relation to the prevention of disability from sickness and accident, and vocational guidance as a factor in sickness prevention.

Addresses have been given by different members of the Division to medical groups and employee groups during the year.

Mr. D. R. Wilson, Secretary of the Industrial Fatigue Research Board, London, England, and Dr. Wade Wright, formerly in charge of the Massachusetts General Hospital Occupational Disease Clinic, during visits to Toronto have materially assisted in furthering interest in different aspects of industrial hygiene locally.

Occupational Diseases.

Schedule 3 of The Workmen's Compensation Act contains a list of seven occupational diseases for which compensation is paid. Reports received by the Division show that twenty-two cases of occupational disease were compensated during the year. By the Regulation of The Workmen's Compensation Board, dated December 24th, 1924, stone worker's or grinder's phthisis due to employment in quarrying or in cutting, crushing, grinding, or polishing of stone, or in grinding or polishing of metal; and benzol poisoning due to employment in any process involving the use of benzol were added to this list. This is of considerable importance.

When silicosis is sufficiently far advanced to produce disablement the condition proceeds progressively and fairly rapidly to a fatal issue. To be effective in the prevention of permanent disability compensation should be paid before the condition becomes disabling.

Of interest in connection with the occupational disease side of the Division's work has been the activity of the Occupational Disease Committee of the Ontario Medical Association in the effort to further information among practitioners as to the incidence and diagnosis of occupational diseases. The Division has prepared two memoranda, one dealing with the diagnosis of lead poisoning and one dealing with nickel rash, for distribution by this Committee to the profession in Ontario. By request a programme dealing with different phases of industrial hygiene is in course of preparation by this Division for a meeting of the Committee to be held early in the new year. The efforts of Dr. V. E. Henderson, Chairman of the Committee, has been responsible for this activity to a great extent.

Clinical Investigation.

Clinical investigations are of two types:—

(1) The investigation of individual cases, generally referred to the clinician of the Division by individual physicians. These involve examination of the patients, in addition to an investigation of conditions under which they have worked. Cases in this group include mainly poisoning from lead and benzol and the effects of the inhalation of silica dust.

(2) The second type consists of surveys of groups of plants in different industries, to include the examination of conditions of work and the examination of the men exposed to hazardous substances. These are:—

(*a*) Investigation into the hazards of the rubber industry: Complete examination was made of 140 workers exposed. These examinations revealed eighteen workers showing definite effects of the exposure to lead, seventeen

other workers showing effects of the exposure to benzol, and three workers with effects attributable to carbon tetrachloride.

(*b*) An investigation into the extent of silicosis among men who had been employed in a silica quarry. This was limited because of difficulty in getting the men together, since plant operations there have ceased temporarily. The results showed one case of advanced silicosis (this patient has since died), two cases in the second stage, and one case in the first stage. Arrangements have now been made to conduct examinations of the other men exposed in this quarry.

In the work on silicosis the tuberculosis specialist of the Department has assisted and in turn received assistance in the tuberculosis clinic.

(*c*) Help was rendered in a third investigation which was a duplicate of an investigation conducted a year ago wherein men exposed to benzol fumes were re-examined to determine whether they were being affected. Of seventeen men in this group three were found to be suffering from benzol poisoning. This investigation was initiated and paid for by the employer.

(*d*) Two similar small investigations were made in two plants using lead. Eighteen men who were exposed were examined. Of these eleven showed some effects but in no case had disability resulted.

Laboratory Investigation.

Mr. H. E. Rothwell was appointed in April, 1924, to succeed Mr. W. E. Green, resigned, as chemist for the Division's work. Mr. Rothwell's qualifications and long experience as an industrial chemist make his appointment very suitable. His activities deal with the identification of substances used in industrial processes with possible hazards to health, with means for their collection and estimation and with chemical analysis required for clinical cases encountered in both the clinical and research phases of the work.

As indicated in last year's report, the Division is confronted from time to time with occupational disease conditions for which no adequate means of prevention exist. To assist in meeting this situation approval was received for the appointment in February, 1924, of Dr. F. M. R. Bulmer. Dr. Bulmer's training in research work gives him a very desirable background, even though he will be called upon to deal with causes of diseases only in so far as this is necessary for the development of preventive measures.

As a result of these appointments the laboratory facilities of the Division have been improved materially and the following work has been undertaken jointly:—

(1) Inquiry was made into the problem of so-called "nickel-rash", a skin condition occurring among workmen employed in nickel refineries and in plating cutlery, skates, automobile parts, etc. It is characterized by intense itching, generally starting at some point of the body exposed to chronic irritation, for example, where the cuffs rub the wrists.

After examination of the literature on the subject, a method was developed for the detection of nickel in small amounts in organic material, capable of detecting nickel in one part per million.

Complete examination was made of each case of nickel rash, including the urine and blood analysis. This led to the discovery of a substance hitherto unknown in the blood. At first this was thought to be peculiar to persons suffering from nickel rash. Further investigation showed its presence in all bloods in varying amounts. Findings have been reported and will be published in the Journal of Biological Chemistry for February, 1925, under the title, "Uric Acid Determinations," Bulmer, Eagles, and Hunter. Mr. B. Eagles

and Mr. George Hunter of the Department of Pathological Chemistry of the University of Toronto collaborated in this work.

Plant conditions were carefully investigated, especially ventilating conditions, because the rash is more common in warm weather. The specific cause of the rash has not yet been found but the measures for prevention which were temporarily recommended were at least partly responsible for a reduction in lost time from nickel rash at the plant of the International Nickel Company, Port Colborne, from 4,160 days in 1923 to 504 days in 1924, only 204 days of which occurred after this investigation was commenced. The International Nickel Company has assisted materially in making this possible.

In addition, many plants conducting nickel-plating operations were visited, after the subject had been discussed with the Canadian Branch of the Electric Platers' Society. Study of the problem is being continued.

(2) Because of its obvious public health importance, a short investigation was made into the question of the contamination by nickel of food prepared in nickel dishes. Nickel dishes were used for cooking purposes and portions of the food analysed showed that an individual on ordinary diet made up of food cooked in nickel dishes would receive about 100 milligrams, or about 1/280 oz. of nickel per day. Nickel is regularly found in some articles of food, such as spinach, and in edible fats in the preparation of which nickel is used as a catalyser. The amounts are very small and appear to be harmless but the question of the effect on health of eating food cooked in nickel dishes requires further investigation.

(3) An important feature of Professor Leonard Hill's recent fundamental work on ventilation is the development of the katathermometer—an instrument calculated to measure the adequacy of ventilation.

The influence of ventilation has touched the work of the Division in two points:—

(*a*) In the investigation of nickel rash which is more common in warm weather, probably partly due to the low cooling power of the air, which throws strain on the heat regulating mechanism and may affect the skin exposed to chemical substances.

(*b*) In its relation to the very high incidence of respiratory diseases among industrial workers.

For this reason considerable field work has been done with the katathermometer to determine how far it may be used in developing preventive measures for these conditions. This work involves the study of plant conditions and of the health of workers under present and improved conditions of ventilation over periods of many months.

(4) A suitable method for the detection of benzol in air has occupied attention. The number of cases of benzol poisoning coming to light is increasing. It can become rapidly fatal. Even when benzol is present to the extent of only 15 parts per million parts of air it produces poisonous effects. These considerations make it at once desirable and difficult to be able to determine the degree of exposure of men working with it. No suitable method for this purpose exists but results of the work being done at present hold some promise.

(5) The real need for a satisfactory fumigant against bed-bugs, cockroaches, etc., in the bunk houses of lumber and pulp camps has prompted inquiry into the use of cyanogen chloride. Its value lies in the fact that it has a tear gas effect in concentrations which are not poisonous, so that ample warning is given to leave the premises. Cyanogen chloride has been used by the United

States Public Health Service for ship fumigation. Experiments in the Division show that it is slower in action than hydrocyanic acid and that the condition of the raw materials used, especially sodium cyanide, is of importance in producing results. It may be that the warning that the tear gas gives will drive away these insects temporarily without killing them—a condition which does not apply in the fumigation of ships. This work is proceeding.

Unorganized Territory.

The work of the Chief Sanitary Inspector which deals almost entirely with industry is separately reported. In the unorganized territory physicians are brought into closer touch with industry than elsewhere in Ontario, due to the Provincial Department of Health regulations—particularly those requiring camp health supervision. This closer contact can readily be extended without legislation when employers and employees more fully realize the advantages to be derived from sickness prevention.

As a beginning, some records of lost time from sickness have been accumulated in certain pulp and paper plants and in one of the largest of these both the workers and the management have gone on record as favouring the development of an effective health service, to include first aid in sickness and accident, periodic physical examination, health education and the supervision of conditions of work. It is felt that the results to be obtained from a programme of this kind operating in the plants of one company would demonstrate to other companies as no other method could the value to be derived from a very extended health supervision.

Recommendations.

(1) There is serious lack of co-ordination between the different government bodies at present concerned with the worker's health, especially The Workmen's Compensation Board, the Factory Inspection Branch of the Labour Department, and the Industrial Hygiene Division of the Provincial Department of Health.

A first-hand study should be made of the different methods of factory medical inspection in England and in some countries of Europe, with a view to judging how best industrial health activities can be administered. It should be possible to build up a service which could co-operate with industry in the prevention of disability.

(2) Serious consideration should be given to the recognition of the idea that the prevention of accidents and occupational diseases is a necessary part of the Workmen's Compensation law. The Workmen's Compensation Act in Ontario at present is not the potent influence for the prevention of disability among workers which it should be. The employer who effects a real reduction in accident cost in his plant pays for his efforts in prevention and at the same time continues to pay a high percentage of his compensation cost. This tends to destroy the initiative to cut down disability.

(3) There is need of some system for notification by physicians of cases of occupational disease.

(4) Legislation should be brought in providing for compulsory periodic physical examination of exposed workers in:—

(*a*) Certain lead trades; for example, storage battery manufacture.

(*b*) The chief trades where benzol poisoning is a hazard; for example, the rubber trade.

ANNUAL REPORT—DIVISION OF PUBLIC HEALTH EDUCATION

J. J. Middleton, M.D., D.P.H., Director

Writing weekly health articles published by 220 newspapers mostly in the rural sections of the Province, answering correspondence from inquirers throughout the Province on all kinds of health topics, checking reports of Medical Officers of Health on the sanitary inspection of schools, issuing pamphlets, including the Health Almanac, preparing the programme for the Ontario Health Officers' Association, editing and proof-reading the Annual Report of the Provincial Department of Health, supervising the preparations of exhibits for the Canadian National Exhibition Health Exhibit, addressing public health meetings from time to time—these were the main activities of this Division during the year 1924.

In addition to routine duties, the chief work of the Division during the early part of the year was the distribution of the Public Health Almanacs, 20,000 of which were printed. Covering letters were sent to the secretaries of all the women's institutes throughout the Province, requesting their co-operation in the distribution of the Almanacs. It was thought that through the agency of the Women's Institutes was a practical way of sending this piece of literature to the rural sections of the Province and the results have been most gratifying. The co-operation of the Women's Institutes was very cheerfully given and the Division's thanks was tendered to Mr. Putnam, the Superintendent, for having typed all the addresses of the various branch institutes scattered far and wide throughout the Province. The Women's Institutes are of great assistance in the distribution of health literature to those in rural sections who are hard to reach.

During the months of July and August, a special series of health articles and health bulletins was written for the newspapers in Alexandria in connection with the health week held in that town in August. The Health Week was carried out by the various divisions of the Provincial Department of Health working in co-operation and was a pronounced success.

In March, 1924, the director of this Division went to Raleigh, North Carolina, to investigate the workings of the County Health Officer Scheme which has been in vogue there for some time. A detailed account of the information gathered on this visit was presented to the Chief Officer of Health. It was also published in the Canadian Practitioner and Review.

The Health Exhibit at the Canadian National Exhibition in 1924 was a spectacular display of the various activities of the Provincial Department of Health. New features were added in the form of a tuberculosis exhibit, very elaborately constructed, showing the different ways in which tuberculosis is spread, and the steps that should be taken to bring about recovery. There was also a striking exhibit in the Department of the Registrar-General, consisting of a large clock with long pendulum illustrating in a graphic manner the number of births, marriages and deaths taking place at every tick of the clock. There was also a series of striking models showing the activities of the Public Health Nurse and the work she does. Methods of preventing the spread of communicable diseases were also shown and a rotating house was on display showing the value of ventilation. The Division of Sanitary Engineering had an interesting and practically useful exhibit showing the arrangements of plumbing work for ordinary dwelling houses, as required by the Provincial Department of Health.

Interesting papers and important discussions featured the programme of the Tenth Annual Conference of the Ontario Health Officers' Association, held in the Physics Building, University of Toronto, on May 20th, 21st and 22nd.

Perhaps one of the most outstanding contributions to the programme was an address on "The Cause and Prevention of Simple Goitre," by Dr. David Marine, Associate Professor of Pathology in Columbia University, New York City. Dr. Marine advocated the introduction of a small percentage of iodine in all salt used for domestic purposes as a means of preventing goitre. The exact amount he suggested was 1/13 of a grain of iodine per pound of salt. Dr. Marine was emphatic in his assertions that this was the most logical way in which iodine could be taken, first because it would be taken by almost everybody, the use of salt being universal, and secondly, because the amount taken per day is so small that no serious results from an overdose of iodine could possibly occur. He emphasized the fact that prevention of goitre did much more than eliminate deformities of the neck. Ninety-five per cent. of the cases of cancer of the throat were attributable directly to goitre, and prevention of the enlargement of the thyroid would also involve the prevention of forms of physical and mental degeneration. Futhermore, there was evidence that goitre sufferers were more susceptible to hardening of the arteries than those who had not the disease, and that the disease tended to hasten senile decay. It was in the light of such facts as these, he contended, that modern society should approach the question of goitre prevention.

Honourable Dr. Forbes Godfrey, Minister of Health for Ontario, announced that within a year he hoped to be able to demonstrate positive cures in a series of goitre cases. "I am not quite satisfied yet," said Dr. Godfrey, "but I intend to give my views possibly next year. Maybe I will have the nerve to give you then a series of cases that were positively cured. I have my clinical material for a period of five years, but I am going to make sure before I speak."

Mr. F. A. Dallyn, Sanitary Engineer of the Provincial Department of Health, said that since the question of goitre prevention was raised a year ago, a thorough examination of salt found and used in Ontario showed no iodine content. Dr. Marine explained that simple goitre occurred endemically chiefly in districts where there are soils composed of deposits of the last glacial epoch on this continent, which contained little or no iodine.

Dr. Hastings, Medical Officer of Health, Toronto, gave an interesting paper on "The Care of the Mentally Subnormal." "It is all very well to talk about developing and multiplying, but we must remember that man's superiority over the rest of creation is due to those mental qualities which he alone of all the animals possesses," said Dr. Hastings. "What are our intellects for? Are we going to use them to protect our own race, or are we going to use them only on lower animals?"

During the discussion which followed the reading of this paper, Dr. H. W. Hill, of Western University, London, uttered a word of warning about race degeneration. "Statistics show," said he, "that the population of the world will have doubled in anywhere from 59 to 70 years. What kind of people is this doubling going to give?" "It has been stated by an eminent authority that in 200 years the descendents of 1,000 Harvard graduates of to-day will have dwindled to 50, and that during a similar period, 1,000 Southern Europeans will have multiplied to 100,000." "Why, if that goes on, the subnormals will be sending the people of normal intelligence to the asylums 200 years from now. And that's not an exaggeration. "Conditions were much like that in the Dark Ages, when the intellectuals were forced to seek refuge in monasteries and

similar retreats," added Dr. Hill. "Sterilization of the mentally defective is the only solution. Segregation is impossible. The State of Minnesota tried it, spent all the money it could afford, and segregated only 1,700 out of a total subnormal population of 25,000. Sterilization is the only solution if the whole human race is to survive as human and not as animal."

Dr. C. N. Laurie, Medical Officer of Health, Port Arthur, and Dr. James Roberts, Medical Officer of Health, Hamilton, supported sterilization, but Dr. Lacoste, Medical Officer of Health, Tecumseh, was opposed, because it would be an indirect form of birth control, "and I contend," said he, "that that system would be anti-christian and anti-social." There is no real problem in this question of the extent and the kind of increase of population. If you are worried, look at the rate of murders in Detroit, for instance. Providence, which is ruling, will take care of that problem through earthquakes and wars, which we can never stop no matter what we may do." He then suggested that their energies had better be directed against agents which caused mental and moral perversion, among which he included the yellow press and the moving picture. Caution was also advised by Dr. A. S. Thompson, Medical Officer of Health for Havelock. Dr. Hill, adding to his previous argument, said he couldn't understand why one of our great churches should be so opposed to birth control when that church has enforced birth control on the most intelligent members of its own community for hundreds of years. Compulsory celibacy is a form of birth control. The church has enforced that form of birth control on its best and strongest. All we are asking for is birth control against the very poorest of our race."

"I am quite in sympathy with the opinion of Dr. Hill," said Dr. Hastings. "We should not lose sight of the fact that all our churches were blaming the Almighty for all the deaths due to typhoid fever a few decades ago. Now they have to admit that we cannot throw the responsibility on the Almighty, or otherwise we will have to say that we have been able to beat the Almighty. We have brought the typhoid rate down from 40.8 per 1,000 to 1.4, and if we can say the Almighty was responsible before, we will have to admit that all of those we have saved have disappointed the Almighty. I say that in all reverence. If medical science had not persevered, the Almighty would have been accused of taking those other 39. I do think that with the advance of medical science, we are big enough and manly enough to shoulder our own responsibilities and use our own intellects."

"I am not afraid of the bugbear of birth control," said Dr. Roberts in closing the discussion. "It is foolish to run away from it, for it is being practised in inverse ratio to the intelligence of the population. The people who are practising it are the best people, the people who should be having children, and the unfit are not."

In reading a paper on "The Recent Typhoid Epidemic in Cochrane from the Medical Aspect," Dr. C. Fenwick, of the Provincial Department of Health, declared that over 81 per cent. of the cases were in persons who had never been inoculated against typhoid fever. Most of the other cases were inoculated in the early stages of the disease. Liquor in the form of brandy, he said, was freely used with satisfactory results as a food and stimulant. Adrenalin was used successfully in the control of the fever.

Dr. W. E. George, District Officer of Health, said that during the typhoid epidemic at Cochrane, certain unfair imputations were made against the Provincial Department of Health and the town authorities. The epidemic was caused, he said, by the sudden, unexpected change of levels in the lake into

which the town's sewage was drained, causing a back flow and polluting the water supply. There was no previous history to indicate such an occurrence, and consequently no warning was possible. In Cochrane there were 832 cases and 59 deaths. Shorter illness and more rapid convalescence marked the cases of those who had been inoculated. Dr. George also showed that seventeen days after it was started to chlorinate the water, the epidemic practically came to an end, pointing out that seventeen days is the normal incubation period.

Discussing the need for and justification of state aid for permanent full-time county public health organizations, Dr. J. W. S. McCullough, Chief Officer of Health for Ontario, said that the present Ontario Government is very friendly towards any measure looking to better health and better health-preserving organizations. He intimated that Honourable Dr. Forbes Godfrey, Minister of Health, is in favour of the establishment of such county organizations, with aid from the Province. Dr. McCullough was diffident of making a statement committing the Government, but he indicated that the matter has been discussed officially and may bear fruit. He said that a good start could be made by inducing counties to take their present expenditure for health as a basis for building up permanent county organizations. He condemned the present part-time system as being inefficient and wasteful. It was left in the hands of the President, Secretary, and Dr. McCullough to appoint a committee to investigate the whole problem and report to a subsequent congress. Condemnation of most public health services because of the loose organization and the uncertain tenure of officers featured the paper of Chief Provincial Health Officer, Dr. J. W. S. McCullough. His paper forecast the amalgamation of all branches of public health endeavour, including school inspection and supervision of hospitals for the insane. Discussing our system in Ontario, the speaker said: "The weak spot is that of 904 officers but eight are full-time men, the rest being practising physicians largely without public health training, poorly paid, whose business in life is not public health work, but the practise of their profession. Such men are hampered by the danger of the loss of practice, jealousy and the lack of co-operation by confrères with whom the Medical Officer of Health competes in his practice, and the general unpopularity of the coercive measures sometimes necessary in the control of communicable diseases."

Some $40,000 is paid out to full-time officers and $217,000 to part-time officers. The great fault of a part-time service, he said, is that little can be done towards preventing outbreaks of disease, most of the effort being directed toward clearing out outbreaks which could have been inexpensively nipped in the bud.

While he admits that part-time men often do excellent service, Dr. McCullough said: "In the majority of the municipalities with a part-time service, the results are most unsatisfactory. There is no well-directed effort in the lines of public health; outbreaks of disease are attacked at the wrong end; there is no education of the public along sanitary lines, and, in short, the service given is most inadequate and a great deal of money spent is wasted. In many of our counties the expenditure runs to $12,000 or $15,000, which, under proper direction, would be productive of first-class results.

"The result of English experience is the adoption of a full-time system for confined areas, with Government assistance." Concluding, Dr. McCullough deplored the apathy of the public in co-operating in building up a more efficient health service.

Dr. F. L. McCarroll, Health Officer of the Espanola Pulp and Paper Mills, gave a paper on Industrial Health, expressing the conviction that the time

will come when all large industries will have their own health officer and nursing staffs, and he expressed the view that medical men so appointed should supplement their professional training by a thorough study of the industrial processes in his plant. Inroads of occupational diseases can thus be checked, and more readily understood. He claimed a great saving for his company by the operation of his department in the plant and town at Espanola.

Dr. A. Y. MacNair, of the Peterboro Laboratories, told of results of the Schick Test and toxin-antitoxin treatment among school children.

Drs. H. K. and R. M. Box, of Toronto, discoverers of the new treatment for Pyorrhoea, opened one session of the conference with a talk on "Oral Hygiene." "Mouth hygiene," said Dr. R. M. Box, "is of first and vital importance to general health, but too little attention is paid to it." Dr. Box described in some detail the best method for brushing teeth with a brush about one inch long, the bristles one-half inch long. The brushing edge should be saw-shaped to penetrate well between the teeth. In addition, he said, to remove foreign substances from the teeth and gums, the brushing should stimulate by a massage process, as it were, of the inner gum tissues. Following, there ensued a discussion led by Dr. Harold K. Box, which stressed the necessity of properly brushing the teeth. It is not enough to brush the inner and outer surfaces of the teeth. The brush must also be brought down in such a manner as to clean the tiny orifices between the teeth and the gums at the top. Honourable Dr. Forbes Godfrey spoke briefly after Dr. Box, stating that after the two schools of thought respecting teeth diseases, he came to the conclusion that Dr. Box should, as a young Canadian, receive the credit due him. He agreed that training in the use of the tooth brush has been faulty. He described the proper brushing system as a shimmy. "Harold K. Box is a genius," declared Dr. Godfrey, "and may have the eccentricities of genius, but he has certainly revolutionized the science of oral hygiene."

Dr. Adam Wright, Chairman of the Provincial Department of Health, presented an interesting paper on "The Prevention of Appendicitis and other Intestinal Diseases." "It is generally acknowledged that constipation is harmful, but very few have an intelligent conception of its meaning. The majority do not even know when they are constipated," contended Dr. Wright. "As a result of stasis or stagnation in the bowels, we get intestinal toxaemia, which leads to all sorts of physical and mental trouble." Dr. Wright emphasized the importance of a well-balanced diet in the treatment of these conditions. "I think it very fortunate," said he, "that we are rapidly accepting the opinion largely through the teaching of surgeons, that the treatment of intestinal stasis (or chronic constipation) is within the province of the general practitioner." Dr. Wright said that, contrary to his early teaching, he had now come to the belief that the taking of mild laxatives regularly was not harmful in a great majority of cases, and certainly it was much more advisable than to suffer the ill-effects of chronic constipation.

Dr. G. C. Brink averred that the success of the Province's travelling diagnostic clinics on tuberculosis depends almost entirely upon the follow-up work of family physicians, especially in rural districts, where hospital or other permanent clinics are not available.

Dr. G. E. Smith, Toronto, told the congress that his opinion is that prospective mothers have not been properly instructed in the past in the most advantageous methods of breast-feeding. Most trouble occurs during the first six weeks after birth. Artificial feeding, he said, is justified only when the supply of natural milk fails. Methods of stimulating the supply were discussed.

Care of the tonsils and adenoids in children from 2 to 5 years old, said Dr. A. P. Hart, of Toronto, will prevent many of the cases of heart trouble, rheumatism and other allied ailments which have replaced tuberculosis as the most prevalent causes of death on this continent. Such causes are behind one death in each fifteen in America, he said. Dr. W. J. Bell agreed that young children are peculiarly susceptible to infection, so that every family physician, he declared, should be an expert in child hygiene. He specially stressed the importance of breast-feeding as a guarantee of future health, and said that where artificial feeding is necessary, cow's milk should be used.

Officers were elected as follows: Honorary President, Honourable Dr. Forbes Godfrey; President, Dr. C. N. Laurie; 1st Vice-President, Dr. F. Adams; 2nd Vice-President, Dr. T. W. G. McKay; Secretary, Dr. J. J. Middleton.

The following committee was chosen to act in the study of a full-time system by counties for medical officers: Dr. Radford, of Galt, Chairman; Dr. Hutton, of Brantford; Dr. James Roberts, Hamilton, and Dr. T. W. G. McKay, Oshawa.

I would again like to emphasize the necessity of having a public health teacher for this division, whose services would be available for field work in the Province, and thus endeavour to keep up a continued interest among the public in health matters by giving addresses to Women's Institutes, Daughters of the Empire, Mothers' Meetings, school children, etc. Such a method of education would in my opinion have excellent results.

ANNUAL REPORT—DIVISION OF CHILD HYGIENE, 1924

Mary Power, B.A., Director

Demonstrations—Public Health Nursing

Cities	None
Towns	18
Villages	20
Townships	51
Total	89

Surveys

Counties	1

Home Nursing Classes

27 Centres—Total attendance	5,645

Child Welfare Clinics

City	1
Towns	17
Villages	9
Rural	4
Fall fairs	4
Total	35

Fairs Attended

Total	26

Special Service

Smallpox epidemic	3
Scarlet fever "	1
Measles "	2
Diphtheria "	3
Other "	3

Health Week

Alexandria and Glengarry County	1

STATEMENT OF BIOLOGICAL PRODUCTS

NOVEMBER 1ST, 1923, TO OCTOBER 31ST, 1924

Date	Smallpox Vaccine	Cost	Diphtheria Antitoxin units	Cost	Diphtheria Antitoxin Syringes	Cost	Schick Test Outfits	Cost	Toxin-Antitoxin vials	Cost	Toxin-Antitoxin boxes	Cost	Streptococcus serum
November	10,722	$482 49	27,396–M	$3,835 44	1,747	$349 90	116	$23 20	235	$235 00	100	$20 00	.....
December	14,000	630 00	30,203	4,228 42	1,682	336 40	42	8 40	101	101 00	78	15 60	.....
January	6,543	294 44	34,916	4,888 24	2,458	491 60	104	20 80	215	215 00	76	15 20	.....
February	77,204	3,474 18	23,731	3,322 34	1,543	306 80	121	24 20	494	494 00	65	13 00	.....
March	130,483	5,871 74	25,037	3,505 18	1,673	334 60	101	20 20	38	38 00	51	10 20	.....
April	14,945	672 53	12,117	1,696 38	345	69 00	62	12 40	39	39 00	23	4 60	.....
May	10,940	492 30	17,623	2,467 22	558	131 60	67	13 40	25	25 00	7	1 40	.....
June	7,240	325 80	16,428	2,299 92	682	136 40	145	29 00	147	147 00	27	5 40	.....
July	5,474	246 33	20,542	2,875 88	858	171 60	21	4 20	34	34 00	2	40	.....
August	6,762	304 29	14,094	1,973 16	664	132 80	7	1 40	47	47 00	2	40	.....
September	8,000	360 00	24,876	3,482 64	1,858	371 60	72	14 40	6	6 00	95	19 00	.....
October	7,800	351 00	22,976	3,216 64	999	199 80	57	11 40	138	138 00	140	28 00	.....
	300,113	$13,505 10	269,939–M	$37,791 46	15,158	$3,031 60	915	$183 00	1,519	$1,519 00	666	$133 20	$2 70

STATEMENT OF BIOLOGICAL PRODUCTS—*Continued*

NOVEMBER 1ST, 1923, TO OCTOBER 31ST, 1924

Month	Anti-meningitis vials	Cost	Intraspinal Outfits	Cost	Tetanus Antitoxin units	Cost	Tetanus Antitoxin Syringes	Cost	Tetanus Antitoxin Outfits	Cost	Pasteur Treatment	Cost	Pertussis c.c.	Tyhpoid and Paratyphoid c.c.	Silver nitrate Solution Ampoules
November	94	$94 00	14	$6 30	391,500	$117 45	68	$13 60	.....	.....	....	.....	2,440	1,510	2,310
December	28	28 00	13	5 85	1,195,500	358 65	151	30 20	.....	.....	....	.....	3,510	1,160	1,850
January	54	54 00	7	3 15	1,213,000	363 90	137	27 40	.....	.....	....	.....	3,230	2,330	1,942
February	51	51 00	2	90	562,500	168 75	2	40	4	$1 80	....	.....	3,220	1,080	2,315
March	75	75 00	2	90	489,000	146 70	7	1 40	8	3 60	2	$30 00	2,130	1,300	3,880
April	48	48 00	4	1 80	880,500	264 15	15	3 00	1	45	....	.....	3,090	4,110	3,670
May	85	85 00	2	90	841,500	252 45	31	6 20	.....	.....	....	.....	2,740	1,635	1,185
June	33	33 00	2	90	700,500	210 15	35	7 00	.....	.....	....	.....	3,235	1,705	2,375
July	73	73 00	12	5 40	960,000	288 00	14	2 80	2	90	....	.....	5,315	3,690	2,120
August	101	101 00	8	3 60	1,181,500	354 45	61	12 20	1	45	3	45 00	2,990	1,480	1,400
September	61	61 00	3	1 35	1,491,000	447 30	12	2 40	11	4 95	....	.....	4,300	3,450	2,115
October	99	99 00	2	90	916,000	274 80	3	60	1	45	....	.....	5,860	2,780	1,840
	802	$802 00	71	$31 95	10,822,500	$3,246 75	536	$107 20	28	$12 60	5	$75 00	42,150	26,230	27,002

REVENUE

	Insulin	Cost	Total Cost	Special Containers	Insulin
November	237,050	$3,653 25	$8,830 13	$3,183 35	$175 55
December	219,500	3,292 50	9,039 52		
January	263,750	3,956 25	10,329 98		
February	253,600	3,804 00	11,661 37		
March	270,750	3,355 00	13,390 72		
April	244,750	2,447 50	5,258 81		
May	377,500	3,775 00	7,250 47		
June	336,750	2,525 60	5,720 20		
July	384,000	2,736 00	6,438 51		
August	275,000	1,958 38	4,934 13		
September	327,250	2,331 65	7,100 29		
October	357,750	2,548 97	6,869 56		
	3,557,650	$36,384 10	$96,825 69		

Total cost	$96,825 69
Total revenue	3,358 90
Net	$93,466 79

ANNUAL REPORT—DIVISION OF LABORATORIES

C. M. Anderson, M.D., D.P.H., Director

I have the honour to submit the following report and tabulated statements of the work of the Public Health Laboratories for the year 1924.

Table I

Table showing number of specimens examined at the Main Laboratory and the eight branch laboratories, throughout the Province for the year 1924.

REPORT FROM LABORATORIES OF THE

Laboratories at	Diphtheria cultures	Tuberculosis sputum	Typhoid Blood	Wassermann reaction	Kahn Precip. test	Colloidal gold	Spirochetae pallida	Rabies (dogs' heads)
Toronto	8,231	2,020	1,096	18,879	4,732	387	6	18
London	2,593	848	490	5,603	.....	407	.....	.....
Ottawa	5,343	662	260	.....	.....	.....	.....	.....
North Bay	2,468	404	192	1,086	.....	.....	.....	.....
Fort William	2,205	339	109	1,176	.....	32	22	.....
Kingston	1,103	499	356	2,488	.....	.....	.....	.....
Sault Ste. Marie	273	166	15	391	.....	.....	.....	.....
Peterborough	525	530	115	281	.....	.....	7	.....
Owen Sound	302	302	70	114	.....	.....	4	.....
Total	23,043	5,770	2,703	29,988	4,732	826	39	18

PROVINCIAL BOARD OF HEALTH OF ONTARIO, 1924

Pasteur preventive treatment, persons	Gonorrhea	Milk counts	Milk butterfat	Water colon and counts	Water chemical analysis	Blood Sugar	Liquors (for license dept.)	Coal (for prov. secretary's and Public Works Department)	Miscellaneous specimens	Total
.....	2,411	317	317	2,323	29	167	4,195	276	517	40,872
.....	615	1,128	721	657	384	.....	.....	.....	1,100	14;546
.....	934	985	1,303	2,905	5	.....	.....	.....	.....	12,397
.....	568	152	152	1,143	.....	.....	.....	.....	21	6,186
.....	495	409	409	679	.....	.....	.....	.....	524	6,199
.....	179	96	96	670	.....	.....	.....	.....	238	5,725
.....	261	46	435	2,419	1	.....	.....	.....	412	4,419
.....	301	542	542	1,182	.....	.....	.....	.....	493	4,518
.....	.....	140	123	517	.....	.....	.....	.....	545	2,117
.....	5,764	3,815	4,098	12,495	419	167	4,195	276	3,850	96,979

Table II

Table showing the total specimens examined at all laboratories during the years 1911, 1922, 1923 and 1924.

Laboratory at	Year			
	1911	1922	1923	1924
Toronto	5,750	31,857	32,675	40,872
London	.....	11,828	12,198	14,546
Ottawa	.....	.....	12,007	12,397
Fort William	.....	5,197	5,952	6,199
North Bay	.....	2,755	4,004	6,186
Kingston	.....	5,761	4,926	5,725
Peterborough	.....	4,197	3,682	4,518
Sault Ste. Marie	.....	6,387	4,349	4,419
Owen Sound	.....	1,752	2,052	2,117
Total	5,750	69,724	81,845	96,979

From analysis of the above tables the following points should be noted:—

(1) That nearly 100,000 specimens were examined by the Public Health Laboratories during the year 1924.

(2) That the total specimens examined at all laboratories showed an increase of 15,134 over the previous year.

(3) That this increase is mainly accounted for by increased activity at the main laboratory at Toronto and the branch laboratories at London and North Bay.

(4) That at the Main Laboratory alone there was an increase of over 8,100 specimens.

(5) That the volume of work at the laboratory at North Bay increased by over fifty per cent.

Table III

Table showing outfits, vaccines and treatment supplied during the years 1922, 1923 and 1924 from the Main Laboratory, Toronto.

OUTFITS, VACCINES, AND TREATMENTS SUPPLIED BY LABORATORY

At Toronto, Years 1922-23-24

Year	Outfits Sent Out									Treatment						
	Wassermann	Gonorrhoea	Water	Diphtheria	Tuberculosis	Typhoid	Blood Sugar	Faeces	Total	Typhoid Paratyphoid Vaccine	Whooping-cough Vaccine	Silver nitrate for prevention of ophthalmia	Phenarsenamine	Mercury Salicylate	Pasteur Preventive	
										CC.	CC.	Amps.	Grams.	Grs.	Cases	No. of Imjs.
1922	22,930	4,812	3,582	7,961	3,644	2,101	.....	.....	67,799	19,395	48,404	22,992	10,130.1	63	8	168
1923	20,336	4,611	3,180	12,882	6,859	3,491	.....	.....	51,359	30,515	40,742	23,660	8,270.1	10,577	4	84
1924	29,220	5,000	2,906	14,652	4,396	3,547	766	332	60,819	26,661	51,385	25,471	8,008.5	13,235	5	105

I.—Bacteriology.

(*a*) *Diphtheria Cultures.*

You will be pleased to learn that during the past year we have not received a single complaint in connection with the examination and reporting of diphtheria specimens. This is to be accounted for in two ways:

(1) Collection of mail at the central post-office at 4.30 p.m. daily.

(2) By making direct smears upon all swabs marked for diagnosis (new cases). Those that we find positive by this method are reported to the physician the same afternoon on which the swabs are received. It will be seen that no effort has been spared in rendering as prompt as possible the report of the culture.

(*b*) *Tuberculosis Sputum.*

Each specimen of sputum is stained by two different staining methods and examined microscopically by two workers. All results are checked before reports are sent out. If tubercle bacilli are demonstrated with one method and not with the other, further films are made and stained until the results agree. This makes for accuracy in reports.

(*c*) *Typhoid Blood.*

Fewer specimens were received from cases of suspected typhoid fever and of course this corresponds with the diminished incidence of the disease throughout the Province.

All laboratories directly controlled by the Department make a uniform examination of dried blood specimens. This new method has been found to be accurate and very satisfactory.

(*d*) *Typhoid Faeces and Urine.*

A new outfit was gotten out during the past year for physicians and health officers to send in specimens of faeces and urine from suspected typhoid carriers. From the number of such outfits sent out we believe that the outfit has satisfied a long felt want. The growing recognition of the importance of the apparently healthy carrier should create a large demand for this outfit for the examination of stools and urine from such persons.

(*e*) *Preparation of Bacterial Vaccines.*

At the Main Laboratories the following bacterial vaccines are prepared:—

1. *Typhoid Monovalent Vaccine.*

This vaccine contains 1,000 million dead typhoid bacilli per cubic centimeter.

2. *Typhoid-Paratyphoid Vaccine.*

This vaccine contains:—

B. Typhosus.....	1,000	million	per	c.c.
B. Paratyphoid "A".....	500	"	"	"
B. Paratyphoid "B".....	500	"	"	"

3. *Whooping Cough Vaccine.*

This vaccine contains 2,000 million B. pertussis (Bordet's bacillus) per cubic centimeter.

The former dark amber coloured bottle and large rubber cap has been replaced by a clear glass vial with constricted neck and small rubber cap. We were able to make this change with the addition of

an individual package for each vial at no additional cost over the former bottle and large cap. Each bottle now bears a serial number and an expiratory date. The improvement in the appearance and the technique of preparation of the vaccines has created an increased demand for our products.

Although not included in the free routine of the laboratories, several autogenous vaccines from cases of acne, bronchitis, asthma, etc., were prepared for physicians from patients not able to pay for same.

II. Serology

Wassermann Reaction.

During May of the past year the Director of the Division visited the Mayo Clinic in order to obtain a first hand knowledge of Kolmer's new Standardized Wassermann Technique. Over 60,000 tests had been made by this method at Rochester and all difficulties had been controlled. This visit, which covered a period of only two weeks, made a great deal of experimental work unnecessary and prevented the possibilities of mistakes which are most likely to occur when a new method of such a complicated procedure as the Wassermann reaction is being applied.

The new test was first run in parallel with our previous method and when the assistants in serology become familiar with it, the Kolmer test was substituted for the old method.

On the return journey from Rochester the Director of the Division visited Dr. R. L. Kahn at the Laboratories of the Michigan State Department of Health, who kindly demonstrated his new precipitation test and pointed out their method of checking the Wassermann test with the precipitation reaction.

Since August, we have been working the two tests in parallel with all serums when sufficient blood is sent. When any important difference occurs in the results of the two tests, both tests are repeated before the report is sent out to the physician.

Results agreeing as they do in over ninety-five per cent. of serums make one feel doubly confident of the efficiency of the work in this branch of the service.

The number of specimens examined for syphilis showed an increase of eighteen per cent. over the previous year. Such an increase in the volume of work indicates a growing appreciation of the service afforded by this part of the Public Health Department of the Province.

III. Chemistry

It will be seen, from the accompanying table, that the total amount of work conducted in the Chemical Department, during 1924, shows a considerable increase over the previous year.

A. Number of Samples Analyzed

	1923	1924
Milk	185	317
Chemical waters	43	29
Blood sugar	None	167
Urine	None	135
Liquor:		
(1) For alcohol	2,430	4,195
(2) For medicinal ingredients	6	28
Coal	201	276
Miscellaneous	3	13

B. Public Health Products Manufactured

Phenarsenamine:		
(1) Number of ampoules	13,538	12,637
(2) Weight in grams	8,270	8,008.5
Mercury Salicylate Suspension:		
(1) Number of Ampoules	5,421	8,069
(2) Weight in grains	10,577	13,235
For Administrative Service:		
(1) Ounces sterile distilled water	22,538	23,198
(2) Ounces sodium hydroxide, 15 per cent	1,148	1,284
(3) Ampoules sodium hydroxide, 15 per cent	372	486

The foregoing table does not include the ammonia free distilled water, colloidal gold, blood sugar reagents, buffer saline and other products prepared by the Chemical Department for the Serological and Bacteriological Departments.

IV. Branch Laboratories

Branch laboratories directly controlled by the Provincial Department of Health—

Fort William	North Bay
Ottawa	Owen Sound
Peterborough	Sault Ste. Marie

Branch laboratories operating by special arrangement, but not directly controlled by the Provincial Department of Health—

Kingston (Queen's University) London (Western University)

The total number of specimens examined at the various branch laboratories of the Department shows a marked increase over last year.

Some of the Branch Laboratories serve as clinics for the diagnosis and treatment of indigent patients suffering from venereal disease. They all serve as centres for distribution of biological products. Many of them also serve as centres for free vaccination against smallpox and for Schick testing and toxin-antitoxin administration in the control of diphtheria. The cities in which the branch laboratories are located use the laboratories for the bacteriological control of water and milk supplies.

In conclusion, I wish to mention the spirit of co-operation and enthusiasm shown by all members of the staff during the past year. Particular mention should be made of the excellent work of the office staff in sparing no effort in promptly advising physicians of the results of laboratory examination.

Our hope for the next year is that we may be able to give even better service.

All of which is respectfully submitted.

ANNUAL REPORT FOR 1924 OF DISTRICT No. 1

T. J. McNally, M.D., D.P.H., District Officer

I have the honour to submit herewith for your consideration the twelfth annual report of this district which is composed of the six westerly counties of the Province (exclusive of the Border Cities and the City of London) and comprises sixty-eight townships, twenty-nine villages, seventeen towns and four cities, in all, one hundred and eighteen municipalities, each having a Local Board of Health constituted as required by the Public Health Act.

Each municipality has been officially visited, on which occasion I carefully reviewed with the Medical Officer of Health or the Local Board its sanitary condition, and when requested or conditions appeared to warrant it, I made a personal survey of the situation.

These personal examinations and contacts with the local authorities appear to me to have stimulated the interest and action of these bodies along all lines of public health activities, so that now it is rare indeed to meet with anything but whole-hearted support of all our endeavours to better sanitary conditions and protect the public health.

The local boards are beginning to appreciate the fact that quarantine of contacts and isolation of cases is not a punishment to be administered, but a necessary precaution to be carried out for the protection of the community with the least possible hardship to those involved.

The new regulations governing communicable diseases are a decided improvement over those discarded in that they bring administration more in line with present day scientific medicine.

The one serious defect that I have so far encountered and it has in several cases caused difficulty in the district is through septic sore throat not being quarantinable.

As the regulations stand at present, it is liable to lead to rather serious consequences where, as I have found, cases were not quarantined though diagnosed as septic sore throat, while scarlet fever was present in the locality in one case and diphtheria concurrent with it in another municipality. The difficulty is made greater by the regulations recognizing the disease as reportable, yet making no provision against its communicable nature.

In addition to the official visits above mentioned, I have called upon the local officials in many municipalities several other times during the year in response to requests for assistance, and to see that conditions that were not satisfactory when I made my official visit were corrected. This frequent visitation has been possible through the service of your motor car which has covered over eighteen hundred miles in the district during the year.

Having thus briefly sketched an outline of the district and year's work, I will deal with the different phases of our efforts in a short note devoted to each.

Public Health Nursing.

Public health nurses completed their demonstrations in Westminster Township, Delaware, and the Town of Tillsonburg, and made a limited examination of the school children of Lambton County. They also interviewed the several Women's Organizations of the county, assisted in fifteen public meetings of children by giving addresses and made follow-up visits of cases of defects in an endeavour to have those affected brought to Sarnia for examination or treatment as required during the health week.

All the work of our nurses and its reception by the public has been very satisfactory.

I am pleased to report that the Home and School Club of Ingersoll is making an earnest endeavour to raise sufficient funds to again employ a public health nurse for the town.

During the epidemic of virulent smallpox in Windsor in the early part of the year, the public health nurses rendered very efficient service which was much appreciated by the city and townships involved.

Canning and Milk Products Factories.

The canning factories at Forest and Ridgetown continue to cause serious nuisances and pollute the streams in their respective localities in spite of very vigorous protests of those affected and the local boards of health, we have also had considerable difficulty with creameries in the district, but have obtained relief in most cases when the owner's attention has been drawn officially to the condition.

Nuisances.

In addition to the cases above referred to, we have been requested to give personal attention to several other major nuisances in connection with pollution of streams, dumps, summer resorts and noxious trades, all of which have been satisfactorily abated.

Milk Supplies.

The care of milk by the local boards under the advice of your District Officer is being gradually and satisfactorily extended, though not yet completed for all the smaller urban centres.

Meat.

The preparation and handling of meat for local consumption are being given fair supervision by the local officials, but so far as I can see will never be complete or satisfactory until some governmental control is extended to cover supplies for consumption within the Province.

Rural Schools.

Your local boards of health under inspection by the medical officers are making slow progress in the improvement of sanitary conditions of these schools. One of the very discouraging features of this work is that even after the trustees at the instigation of the medical officer make such improvements as are fairly satisfactory, the next annual examination finds the condition almost as bad as before through the carelessness of the pupils.

Educational.

Considerable advance along this line has been made in the District during the year by means of addresses given by the local officers of health in the schools and at society meetings.

The District Nurses have done splendid work along this line by their demonstrations, Little Mother's Leagues, Home Nursing Classes and addresses to school children and women's organizations as well as in Lambton County in connection with the stimulation of public interest in the health week.

Communicable Diseases.

Smallpox.

This disease has been quite prevalent in mild form in the Counties of Essex, Kent and Lambton with a few cases scattered over the other counties.

In February, a virulent type of the disease appeared in unvaccinated persons in the Border Cities and from there spread to surrounding municipalities through the first case being of irregular form and not being recognized. During this epidemic there was not any person who had been successfully vaccinated during the preceding twelve years contracted the disease even in a mild form, though many had been exposed to it.

Five who had been vaccinated from twelve to sixty-five years previously took the disease in a very modified form and all recovered.

Five who had not previously been vaccinated were vaccinated after exposure, and while all of them came down with the disease it developed in very mild form and all recovered.

Twenty cases occurred in unvaccinated persons and only four of these recovered, and these after a very critical illness and all severely pock marked.

These cases, thirty in all, were contracted from contact with the virulent haemorrhagic type of the disease and occurred in municipalities outside of the Border Cities. These cases present in emphatic form an epitome of the advantages of vaccination for this disease.

The fact that the first case of this severe form of the disease occurred in an irregular and unrecognized form accounts for the fact that all contacts were not immediately vaccinated to protect them from the disease in fatal form.

Many further facts in connection with this epidemic might be quoted to substantiate the necessity for and the protection afforded by smallpox vaccination, but I will only relate a few as follows:

One striking feature was the fact that vaccinated nurses, although in intimate contact with these virulent cases, did not contract the disease in any form.

In a family of ten persons, all equally exposed, nine who were vaccinated did not develop any form of the disease, while the tenth member of the household who unfortunately was unvaccinated became its victim and died.

In the home of the first unrecognized case, the daughter, who was vaccinated six years previously on entering school, escaped any form of the disease, although she was in constant attendance upon her father; mother and aunt who were unvaccinated took the virulent type of the disease and died from it.

In a laundry where twenty-five persons were employed, twenty-four were vaccinated and did not have the disease, while the twenty-fifth who was unvaccinated fell a victim of the malady.

The practical lesson driven home to our Department of Health by the above lamentable epidemic, is that we should insist on vaccination of all pupils before entering any institution of learning receiving assistance from public funds.

Diphtheria.

While the mortality from this disease is gradually though slowing diminishing, it is continuing altogether too high and its incidence is but little lessened. It was necessary for me on two occasions to visit different localities during the year to insist on the local authorities being more active in controlling this disease. In both instances, after my visit the incidence of the disease lessened very rapidly and soon disappeared.

Venereal Diseases.

While the incidence of these diseases in this district is not perhaps as great as in the larger urban centres, I am satisfied it is more common than the records indicate, but it is pleasing to note that there is quite an appreciable growth of sentiment in the public favourable to dealing with these diseases in such a manner as to protect the innocent and prevent their extension rather than, as formerly, to ignore their existence.

Scarlet Fever.

This disease has been where it appeared in the district of rather a mild type, hence has given some difficulty owing to missed and concealed cases. It has also, I am satisfied, in some cases been diagnosed as septic sore throat.

Measles.

The local officers are now placarding all cases brought to their attention and making reasonable effort in most instances to locate missed and hidden cases.

Tuberculosis.

Our diagnostic clinics continue to function and have done excellent educational and preventative work. I have not endeavoured to extend the work as after conference with those conducting them it was considered wiser to get those already operating well established before proceeding into new territory.

Typhoid Fever.

There has not been any outbreak of this disease in the district during the year, although isolated cases have occurred at several points. There was a slight outbreak among the patients in the Ontario Hospital, London, which I was instructed by the Chief Officer of Health to investigate and report upon. I did so, and from the information I obtained came to the conclusion that it originated from some carrier from a former epidemic and so reported.

A very complete checking up of all patients who formerly had suffered from the disease by Drs. Fenwick and McKay of your Department, using the Widal test and bacteriological examinations of urine and faeces, confirmed my conclusions and located the carriers.

The medical staff of the hospital very promptly cut off the outbreak by immunizing everyone in or connected with the institution.

Public Water Supplies.

There has not been any disease in the district this year traceable to this source which speaks well for the supervision exercised over these works by your engineering division and the local authorities somewhat stimulated by frequent visits and enquiries.

Summer Resorts.

I have kept as careful supervision over these resorts as time permitted, but my comments and recommendations in last year's report is still applicable. I respectfully request that one of your engineering division's staff of engineers be assigned during this season, as soon as the spring opens, to this district to devote his full time to obtaining a safe water supply and proper sanitary toilets at all of these resorts in No. 1.

This expenditure appears to me entirely justified in view of the large populations involved and the importance of encouraging the large tourist trade.

ANNUAL REPORT FOR 1924 OF DISTRICT No. 2

J. J. Fraser, M.D., D.S.O., District Officer

Among the many activities engaging the attention of public health officials during the past year were: control of communicable diseases; milk and meat supplies; rural sanitation; county health officers; periodic health examination; pasteurization of milk.

Epidemics are being controlled to a much greater extent than formerly. It is generally agreed that the reporting of communicable diseases is essential to their control. Would it be advisable to give a fee for reporting? In Edinburgh, the town council has decided to pay a fee for the first case of measles or whooping cough occurring in any house. Detroit pays a fee of fifty cents for each case of tuberculosis reported.

I have had several enquiries from villages, asking how they can improve their milk supplies. Every slaughter house in the district is, I think, inspected at least once a year. A good deal of tact has to be exercised in small places, because if changes involving too much expenditure are insisted upon, the butcher or the milkman sell out, and the same amount of education must be gone over again with the new dealers.

Rural sanitation has not kept pace with urban in many respects. It is due not so much to a lack of knowledge as to a lack of funds. Typhoid fever is now more common in rural districts than in urban, chiefly because the water and milk supplies in cities are better controlled.

Where full time health officers are employed, real advance is made in public health. Nothing but a campaign of education will enable municipalities to see this. Kitchener and Waterloo attempted to get together and employ a full time man, but the scheme fell through.

Periodic health examinations would go a long way in the prevention of such diseases as cancer, heart disease, diseases of the circulatory system and kidneys, which now exact such a heavy toll of deaths. These examinations would detect illness at its onset, when preventive measures may be effective. Tendencies toward disease may be discovered and instructions given for overcoming them. Sir James McKenzie, in his "Future of Medicine," says this will form a large part of the practice of medicine. A questionnaire sent to a large number of physicians, asking their opinion as to the advisability of this, resulted in ninety-four per cent. of them answering in the affirmative.

General Epidemiology:

Smallpox.—There were only forty cases of smallpox reported in the district during the year. This, I feel, is due more to a kind Providence than any preventive work that has been done. Where a case of smallpox occurs, it is always insisted upon that those in the section, especially the children, be vaccinated. Sometimes it is possible to get some of the adult population done also, because in the actual presence of smallpox the anti-vaccinationists are usually very quiet.

Diphtheria.—Every death from diphtheria is investigated. The greatest cause of fatalities is—neglect of parents to call a doctor early enough. I do not know of any doctor who now waits for a positive laboratory return, if the clinical signs suggest diphtheria, anti-toxin is given at once. The Schick test has not been taken advantage of to the extent it should have been.

Scarlet Fever.—Has been of a mild type, occurring in sporadic cases. There was a small epidemic at Listowel early in the year. Immunization against scarlet fever by the Dick method is now an established fact and preventive measure.

Measles.—There were 2,413 cases of measles in the district with seven deaths. There were 24,095 cases in the Province.

The World's Health for September, 1924, contains an article on the prevention of measles. One example is given where of 1,700 children exposed and given a prophylactic dose, ninety-seven to ninety-eight per cent. did not develop measles with rash. This immunization is brought about by the injection of 2.5 c.c. of the serum of convalescents from measles.

Whooping Cough.—Is deserving of more attention than is usually given it. In 1923 the deaths from whooping cough in the Province were 181 as compared with 131 from scarlet fever. The Provincial Board supplies a serum for treatment, the reports from which are very conflicting. In some cases it is found useful in lessening the number and severity of the paroxysms. In other cases, no apparent effect is noticed. Early isolation of patients ill with the disease is at present the most effective measure for preventing its spread.

Typhoid Fever.—There were sixty-nine cases reported with three deaths. These sixty-nine cases were reported by thirty municipalities. Owen Sound, Orillia, and Kitchener reported eight each, but these were in hospital in the respective places, having been brought in from outside. Most of the cases were from the country. Auto tourists, campers, picnickers and the like are the most liable to infection, and should guard against it. They can safeguard themselves absolutely by treating their water and milk supplies, or by taking an inoculation before starting on their holidays. Either of these methods is safe and easy.

Hanover shows a striking example of what can be done by guarding the water supply. There were only four cases reported this year as compared with forty-eight the previous year, and fifty-six the year before that. These four cases were in an outlying part of the town not yet served by the new system.

Tuberculosis.—Chest clinics are held regularly at Orillia and Barrie by Dr. Kendall of Gravenhurst Sanatorium. Also at Galt, Kitchener, and Hespeler by Dr. Coutts of Freeport Sanatorium. These clinics have been found of great value. The local physicians receive help and stimulation in examining early cases and contacts. In this way a great deal of good work is being done, the results of which are hard to estimate.

Dr. Brink of the Provincial Board held clinics at Clinton and Stratford. Both these were highly successful and both places have asked to have them repeated. At Stratford the clinic lasted five days and two more days were asked for. This surely shows the need of such work.

The surveys of children made in the different provinces of the Dominion for tuberculosis are serving a most useful purpose. These surveys reveal an average roughly of one per cent. showing definite signs of tuberculosis, and five per cent. showing suspicious signs.

The pessimism that exists as to the value of sanatorium treatment is not justified. Even a short stay in a sanatorium is useful in teaching the patient how to take care of himself, but the duration of treatment might well be extended. If patients could be persuaded to go in earlier and stay longer, many useful lives would be lengthened. This might involve vocational training in the sanatorium, which might serve a useful purpose.

It is of interest to note that two cases are now pending judgment in the courts as to which of two municipalities is responsible for the upkeep of the patient during his stay in the sanatorium.

Anterior Poliomyelitis.—There was a small outbreak at Ayton in the County of Grey in September. There were twelve cases, all occurring within two weeks. Some interesting features of the outbreak were: three cases in one family and two in another. Half the cases were between the ages of two and fourteen, one was five months' old. The paralysis ranged from a slight paresis of one limb to complete paralysis of the four extremities. There did not appear to be any connection in the path of contagion, except three cases in each of two school sections.

The thanks of the Department were expressed to Dr. D. E. Robertson, orthopedic surgeon, and Dr. G. F. Boyer, neurologist, from the Sick Children's Hospital, who saw the cases with me in the interests of public health. They made measurements for splints, and gave valuable advice on the training of muscles in the cases affected.

Venereal Disease.

These are not reported as fully as they should be, where there is a clinical centre reporting seems to be better.

The criticism had been made of these clinics that they do not prevent venereal disease, but they certainly do prevent many dangerous sequelae that might follow if left untreated. It is the experience of those who conduct these clinics that patients will report for treatment who would not go to their own physician.

Public Health Nursing.

During the year the nursing service has been disturbed by health demonstrations in other districts.

Miss Campbell continued her work in Dufferin County, a Child Welfare clinic being held at Shelburne. This completed the work in the larger centres—Orangeville, Grand Valley, and Shelburne. Work was then begun in the townships, working through the schools out into the homes.

Miss Castle put on a demonstration at Milverton, where a Child Welfare clinic was held on January 23rd. Intensive work was done at Listowel, including school nursing, but on account of an epidemic of scarlet fever, no clinic was held.

Public Health demonstrations were given by both nurses in the Townships of Amaranth, East Luther and Mono, and in Mornington Township in the County of Perth.

Surveys were made in Huron, Bruce, and Grey Counties, including Wiarton, Lion's Head, and Tobermory in the Bruce Peninsula.

Many meetings were attended in connection with Women's Institute Conventions and practical contacts assured. Many fall fairs were attended where Baby Shows were held, which were almost like Child Welfare Clinics.

A forward step in nursing, from which much benefit is expected, was made during the year when the medical and dental inspection of schools was placed in charge of the local health authorities. This is provided for in Section 76 (JJ) of the Public Schools Act as amended in 1924.

An Outpost Hospital has been opened at Lion's Head in the Bruce Peninsula, financed by the Canadian Red Cross. This should be of inestimable value to all parts of the peninsula, especially to the places in the north like Tobermory, which is sixty miles from a railway and seventy-five miles from a hospital.

The nurse lives and works in the community, meeting as far as possible the medical and nursing needs of the district. The outpost is in charge of Miss Lawrence, who has had previous experience in the work at Wilberforce.

Water and Sewage.

Nineteen permits were taken out for extensions and improvements to water systems at a total cost of $293,735. Twenty-seven for new and extended sewerage systems at a cost of $350,988.

Most municipal water supplies in Western Ontario are derived from deep artesian wells and springs, and do not require filtration or chlorination. When the supplies are taken from lakes or streams, as in some of the lake towns, there is always a potential danger. Eight such places are chlorinating their supply.

An anomaly exists at Owen Sound, where the supply is derived from the Sydenham River and from springs. The water from the river passed through sand filtration is pure, while that from one of the springs shows intermittent contamination. A chlorinating plant for the springs has been ordered for delivery.

Goderich installed a new intake and an improved chlorinating plant at a cost of $60,000 and has now an adequate supply of pure water.

Kitchener is having difficulty in having its sewerage system keep pace with its growing population.

The district officer is kept well informed of the state of the water supplies by the reports of analyses sent direct from the Provincial laboratories.

Summer Resorts.

The sanitary conditions as found at the resorts and hotels were very good. An attempt has been made to get the local health officers and sanitary inspectors to keep a closer check on the cottages and private places.

The water is well protected from contamination. It was recommended in some places that the intake be extended or the location changed where it was thought to be too near the bathing beach. It was reported that an analysis of the water in the Muskoka Lakes had been made and that the water was polluted. But no trace of when or where this analysis was made could be found.

The disposal of sewage is well attended to. The old pit closet is practically a thing of the past. Two or three places have the dry earth closet, but the hotels have installed flush closets and septic tanks. At two places, the Windermere and Epworth Inn, the sewage had broken out through the weeping tile. At the Windermere, the manager had a quantity of tile on the ground waiting for help to get it laid. In the meantime he was shown how to take care of it. At Epworth men were working on the break. There is an expensive plant here, but it has not given very good satisfaction owing to faulty construction.

During July many of the hotels were not half filled. August was a little better, but it was not at all a good season. Three reasons were given for this—cold weather at the beginning of the season; the Wembley Exhibition; the unsettled state of business.

A new place, the Newtonia, at Windermere had built a cesspool in the sand, under the impression that it was a septic tank. The owner was told to have a proper septic tank, and he promised to have one installed.

Investigated complaints *re* the Government dredge and S.S. Sagamo, reports of which were sent to the Provincial Board.

Milk and Meat.

While some municipalities have a live issue in pasteurization of milk, public opinion is not strong enough to enable them to pass the necessary by-law

requiring it. Opinion seems to be divided between tuberculin tested herds and pasteurization. Now that the Municipal Tuberculosis Order was discontinued last year, more weight may be thrown on the side of pasteurizing. Replacing the Municipal Tuberculosis Order are two sets of Regulations—1, Regulations for the Establishment and Maintenance of Tuberculosis Free Accredited Herds; and 2, Regulations applying to Restricted Areas.

Veterinary science is now recognized as a part of public health services, and many places employ veterinary inspectors. They held very intelligent views on milk and meat inspection.

The slaughter houses have received a good deal of attention. Some towns get all their meat from the abattoirs in Toronto, where they know it has all been Government inspected. Adequate meat inspection in rural slaughter houses is out of the question. It can only be done in public abattoirs. The demand for these may be a long time coming. In Scotland where ninety-two per cent. of the meat killed is killed in public abattoirs, the demand has been going on since 1860.

All carcases intended for human food should be inspected, and the places where they are prepared should be licensed. It is obviously wrong, and defeating the object to subject the members of the meat industry to rigid inspection, and at the same time to allow dealers, farmers, and others to slaughter animals in premises in many cases undesirable to say the least, and then sell their carcases without any guarantee that they are fit for food.

The Village of Ayr, which was settled one hundred years ago, wished to close two of its old cemeteries, and applied to the Provincial Board for authority. Through the energy and enterprise of one of its citizens, Mr. John Goldie, the history of every grave was traced and recorded. This plan I would recommend to other communities that have abandoned or deserted cemeteries.

There were no less than six deaths among the health officers of the district during the year. Each of these was a splendid type of old family physician, and had served their community as health officers for a long time.

Dr. Robertson of Stratford was for nearly fifty years M.O.H. of the city, and up to the time of his death took an active interest in his work. Dr. Hart of Huntsville had a large private hospital which served the northern parts of Muskoka in the early times for years. Dr. McGillawee of Kitchener; Dr. Hutton of Durham; Dr. Greenlaw of Palmerston; and Dr. McDonald of Owen Sound, all enjoyed the esteem and confidence of their communities, and gave freely of their time and ability to matters pertaining to the health of their public.

ANNUAL REPORT FOR 1924 OF DISTRICT No. 3

D. A. McClenahan, M.D., D.P.H., District Officer

I have the honour to submit my annual report of the activities of the District Officer of Health of District No. 3, Province of Ontario.

As in previous years I have found in 1924 that a large part of my time has been taken up with epidemiological work. Whether we agree that this is the most important phase of public health work or not, the fact remains that it takes up a large part of the district officer's time.

Typhoid Fever.

We are still having small epidemics of typhoid and also sporadic cases. The causes of these epidemics in my district during 1924 have been in nearly

every case the infection of the milk supply by a typhoid carrier. In January, 1924, I was called to the cyanamide plant at Niagara Falls in connection with two cases of typhoid which had occurred among the employees. The city water is used in the plant and was polluted at the time the first case came down with the disease. The second case was the male nurse at the plant. He had looked after the first case for a time and had, I think, contracted the disease from him. The amount of chlorine was increased in the city water and no subsequent cases were observed. The employees all received typhoid vaccine by way of precaution. An interesting case came to my notice in connection with a patient sent from Ancaster Township to the Hamilton City Hospital with a tentative diagnose typhoid. The Widal test was negative at the end of the first week. The patient's temperature dropped to normal before the end of the second week. Later on marked peeling of the hands was observed. The Widal was persistently negative. It was without doubt a case of scarlet fever. I visited the patient's home in Ancaster, but could not find the source of the scarlet fever. I also visited the school in Ancaster Township where the patient had attended, but examination of the pupils revealed no other cases.

The epidemic at the Norfolk House of Refuge offered a very interesting study. About three years ago, two patients at the Home developed typhoid. At that time it was thought to be due to a polluted water supply. A new source of supply was obtained and repeated examination showed no pollution. Then in 1924, five more cases developed at different times. On investigation, I found that the water was not polluted, and the milk was not handled by any one who had ever had typhoid. On doing a Widal on the two cases which had occurred three years before, we found that one of them gave a positive Widal. Examination of the stools has been negative thus far, but I am satisfied that the patient is a carrier. She had been accustomed to working in the kitchen and had probably infected the food. This patient, a woman, is somewhat feeble-minded. No subsequent cases have broken out since the carrier was removed from the kitchen. During the investigation, I received every assistance from Dr. Grassett, M.O.H. for Simcoe, and also from Miss Spencer, the superintendent of the Home.

Another outbreak of thirteen cases occurred at Long Branch. On investigation it was found that the houses where the cases occurred, all received their milk from one milkman. The proprietor did the milking himself and gave a history of having had typhoid some years before. On examination of the blood the Widal was found to be positive. Cutting off the milk supply ended the epidemic. The water supply at Long Branch is the same as that at New Toronto and Mimico and showed no pollution.

These different epidemics emphasize the danger of an unpasteurized milk supply. Milk in my opinion should be collected in as cleanly a manner as possible and then pasteurized. If milk dealers will not put in pasteurizing plants, then I believe it would be good business for a municipality to look after its own supply and put in its own pasteurizing plant. It is surely just as important to have a safe milk supply as it is to have a safe water supply.

Smallpox.

We have had a few cases of smallpox in my district during 1924. We have had no serious epidemics. We have been very fortunate in most instances in having the first case diagnosed, and where this is done and proper precaution taken regarding contacts, no serious epidemics result. There were three cases broke out in the Township of Ancaster, Wentworth County. The first case here had not been seen by a physician after the rash came out, and consequently

the disease spread to two near-by neighbours. When recognized and proper quarantine established and contacts isolated, the disease subsided.

Diphtheria.

In January and February, 1924, there was a rather extensive outbreak of this disease in Brampton. Cases had been cropping up since November, 1923. I am of the opinion that at the commencement all cases were not reported and in the cases reported, other members in the families were not immunized against the disease, nor were all members in the family tested as to infectivity when the patient was set free. There were one or two sudden deaths that were suspicious in young children. They may have been diphtheria and this would of course help to spread the infection. I had already made one or two visits to Brampton in January and taken the matter up with Dr. Sharpe, M.O.H., Brampton. I recommended at that time swabbing the throats of the children in the schools, but nothing was done. Then some of the residents in the town became alarmed and a letter was sent to the Department complaining that there was lax enforcement of the quarantine, and that favouritism was being shown to certain individuals, that all cases were not being reported, and that the doctors were trying to keep the epidemic alive. At my subsequent visit to Brampton, I could find no evidence to support the latter charge. I insisted on an energetic effort being made to subdue the epidemic. As some of the cases had been attending school, I thought we should have nurses take swabs from all the pupils. Miss Power kindly loaned a nurse, Miss Murphy, who assisted Miss Galbraith the school nurse. Excellent work was done by these two nurses. I also visited the Town Council in company with Dr. Sharpe and asked for their co-operation in an effort to stamp out the epidemic. They assured us they would co-operate in any way. Dr. Sharpe also undertook to see that there was a closer quarantine observed. I also visited all the doctors and got the promise of their co-operation. A number of carriers were found in the school and some of them were virulents. These were isolated and treated and the epidemic subsided.

I think it is advisable to have all children in any community tested for susceptibility to diphtheria by means of the Schick test, and all positive cases treated by toxin-antitoxin serum. I am satisfied this procedure would eliminate a large number of the cases of diphtheria we now have.

Scarlet Fever.

We have had fewer epidemics of scarlet fever in District No. 3 than during 1923, the only one of importance was in Bridgeburg. At the outset the quarantine was not properly observed. Dr. Collins, M.O.H., telephoned me when about twenty cases had occurred. I visited the town and made an investigation. The Board of Health co-operated and a special nurse was appointed to assist the school nurse in going over the children every morning and isolating those with a temperature of 100 or over, or those with a suspicious looking throat. A strict quarantine was established and it was not long before the epidemic was under control.

Tuberculosis.

The number of tuberculosis cases still continues large. With the assistance of Dr. Brink, I have tried to have Tuberculosis Clinics established in Welland and Simcoe. We visited the Norfolk Medical Society and explained the object of the Tuberculosis Clinic and the medical men were favourable. The Board of Health, however, declined to furnish the room and necessary equipment. A

hospital is being built in Simcoe, and when completed it is thought that accommodation for the clinic can readily be found there. In Welland the M.O.H. was favourable, but difficulty was found in getting a suitable room. We are hopeful of the establishment of these two clinics during 1925.

Sanitary Inspection of School Premises.

This has been productive of a great improvement in conditions in school houses especially in the rural sections. I have been trying to assist the local M.O.H. in the cases reported to me by Dr. Middleton. Where we get a meeting of the school board and explain exactly what we want them to do and when we want it done, there is rarely any trouble in having the improvements carried out.

Nuisances.

A large number of alleged nuisances have been investigated during 1925. One complaint was made by residents of Avondale Avenue in Hamilton, about the smoke dust and noise arising from the operation of the Doolittle, Russell Supply Co. just across the street. I spent a good deal of time in investigating the complaint, had interviews with the residents, with the manager of the company and with Mr. Doolittle himself. I was ably assisted by Dr. Roberts, M.O.H. of Hamilton. We got conferences between the representatives of the company and the complainants. In the end the conclusion reached was that the only satisfactory solution was for the company to enclose in a building the entire plant. This the company deemed was beyond their means. The Board of Health of Hamilton met and passed a resolution recommending that an order be made to compel the company to abate the nuisance. This was done and the matter rests there at present. Both sides displayed a fine spirit of conciliation throughout the negotiations.

Recommendations.

1. I would like to recommend the establishment of a purely public health laboratory at Hamilton. This could be done in collaboration with the City of Hamilton and would serve both the city and that part of District No. 3 not contiguous to Toronto. There is room here in the Health Centre Building for such a laboratory. It would be a decided benefit to the public and the medical profession. Incidentally, it would provide the District Officer with a proper office which he should have.

2. The water supply of the City of Hamilton is not satisfactory, being polluted in about seventy days out of the year sometimes to the extent of colon in 1 c.c. I would recommend that the Department make an order requiring the City of Hamilton to install filtration and chlorination plants at once.

3. I would recommend that the Public Health Act be so changed that the responsibility for the abatement of nuisance be divided between the Police Department and the Engineering Department.

ANNUAL REPORT FOR 1924 OF DISTRICT No. 4

N. H. Sutton, M.D., District Officer

I beg to submit herewith a report on my work in District No. 4 for the year 1924.

In doing this, I pass over without special mention the usual routine work of the visits to M.O.H.'s, correspondence, consultations, etc., and mention only those things which seem to me to be of special interest, or which present special problems to be solved.

In this class is the problem of public health in northern areas of the district. The part to be considered in this is the County of Haliburton; the northeastern three townships of Peterborough County and, roughly, the northern half of Hastings County. The basic reason for the presence of this problem is that agricultural settlement of this area is economically unsound. It will not adequately support an agricultural population. Such settlement having, however, been allowed to establish, it inevitably follows that it has suffered the steady loss of the best of its citizens to more promising areas, and those who have remained have felt the deadening influence and hopelessness of toil inadequately remunerated.

The sparseness of the settlement and distances from neighbours meant lack of real community life. We have therefore now to deal with problems of unattended or insufficiently attended sickness, lack of sufficient maternity care, lack of education, and the need for mental hygiene, social hygiene, and social service generally.

In January, I visited the Hasting's Medical Society and took up with them and their committee appointed to deal with this subject, the problem in so far as it obtained in Hastings County. The first step, in their estimation would be the establishment of a Government-assisted small hospital in Bancroft Village, which is the centre of a forty mile area of more or less isolated small villages and neighbourhoods, such hospital to be staffed with one or more nurses, one of whom would have the hospital under her charge and do a certain amount of public health nursing. The other to be specially in charge of public health nursing in the area and assist in the hospital when special need arose. Before arriving at this conclusion, various other plans were discussed; amongst others, the subsidizing by the Provincial Government of recent graduates to take up residence for a time in some of the isolated villages which were strategically so situated as to serve a considerable area. It was noted that if a young man were subsidized thus, why should a subsidy not also reach the older men who were already in the area and had borne the burden already for many years.

Another plan suggested was, allowing those in their final year to engage in practice in the area under the supervision of neighbouring doctors, or in the alternative, the supervision of District Officer. It was felt by most of the committee, however, that the right type of student might not always be obtained, and the last state of the people be worse than the first. Other suggestions offered did not have sufficient attraction to be seriously considered.

Later in the month I attended the meetings of the County Councils of Victoria and Peterborough and took up with them this problem, to see whether in their opinion—they being the elected representatives of these people—the problem existed at all acutely in their area.

In Victoria County it was not existent to any great extent, and in Peterborough only presented itself in the northeasterly three townships. In Hali-

burton, the problem exists most specially in the southeastern part of the county in a range of townships above the northeastern part of Peterborough County and bordering the northern part of Hastings County. It was in this area that the Red Cross has had an outpost in the Village of Wilberforce. Later the County Councils of Hastings and Peterborough passed resolutions requesting the Provincial Government to examine the matter, with a view to establishing small hospitals at Bancroft for North Hastings, and Apsley for northeastern Peterborough.

During the summer I have had one of the Provincial nurses allotted to my district, working in Bancroft and the surrounding area. She very early found that social service would have to be added to her nursing work, and has been carrying on on that basis with my hearty approval. When she has finished going over the area, she will have a very valuable report, throwing further light on this problem which has for a long time cried out for solution.

During the year, various demonstrations have also gone forward in my district by the nurses of the Department, and gradually the ideal of public health nursing is being spread among the people and commending itself to them wherever demonstrations have been given. It is a period of rigid economy, and new expenditures, however much they might commend themselves, are simply not being indulged in by municipal councils, where by any possible excuses they may be put off or vetoed; hence no new appointments of resident public health nurses have been made in the district.

The end of January saw the nursing demonstration in Lindsay completed, and in spite of a very large representation of all the Women's organizations in the town, and of the Board of Education, the council refused to ratify any new expenditure and a nurse was not appointed. The Board of Health, under these circumstances, fought shy of exercising their power to appoint one, and it may take considerable time or the loss of some children's lives in an epidemic to bring things again to a head.

The appointment of a Public Health Nurse in the village of Longford, a project fostered by an industrial concern, immediately followed a nursing demonstration at that place. The presence of a sharp outbreak of scarlet fever in Bowmanville, is, I am assured, to be followed by the appointment of a Public Health Nurse there at the beginning of 1925. The demonstration during the late summer and early spring in Campbellford met with very warm approval, but so far here also will the endeavour to reduce tax rate prevent the appointment of a Public Health Nurse, though it is intended if possible to extend this demonstration throughout the Township of Seymour surrounding the town of Campbellford, and it is expected that the two municipalities may combine for the appointment of a resident nurse.

During the autumn, another demonstration is in progress in East Peterborough, centred on the Village of Norwood.

In February I was able to go about with Dr. Brink to visit the medical men in the various towns and assist him in establishing visiting points for his travelling chest clinic at strategical points in the district.

In the month of March I undertook, in conjunction with the Canadian Social Hygiene Council and its local organization, to put on their Social Hygiene Exhibit. In this work we were indebted to the Provincial Board for the loan of the wax figures and the services of Miss Moore and Mr. Jones, together with the films and literature. The exhibit was held for a period of two weeks, and in that period was seen by over 4,700 of the adult population of Peterborough and surrounding townships, as well as some visitors from points further distant

in the district. The membership in the local Social Hygiene Council jumped from less than 50 to some 350. That the interest is still keen amongst many people is evidenced by the fact that inquiries concerning this work are still coming in from quite a wide area.

In the autumn the local council had a tent at Peterborough Exhibition, with a necessarily smaller exhibit, but again a gratifying attendance and a keen interest was evidenced. Certain organizations in Belleville and other places are endeavouring to pave the way for a similar exhibit in their towns. I regard this as a work which promises great results.

During the summer I carried on intensive work on the sanitary condition of the increasingly populous summer resorts of the Kawartha Lakes region. I found many things which were in great need of rectification and was able to accomplish a very gratifying amount of improvement. That this is needed is shown by the results of the examination of the samples of water taken at various points along some forty miles of lake and river. Not one of these failed to show pollution, which in some places was fairly massive. This throws an interesting light on the presence of a certain amount of annual summer diarrhoea in various parts of the resort area, and will assist considerably in finally tightening up the sanitation to the degree which should obtain.

Most of the autumn has been taken up with routine work, of which I only mention investigations into the typhoid epidemic at Belleville, the salient points of which were the necessity in urban areas of getting such facilities installed as will insure a municipal water supply, which will be attractive as well as pure, and will allow the closing of the private wells which are always a source of danger in urban centres.

All of which is respectfully submitted.

ANNUAL REPORT DISTRICT No. 5

P. J. Maloney, M.D., District Officer

To the Department of Health:

I have the honour herewith to submit my annual report for the year 1924, District No. 5.

District No. 5 is made up of the Counties of Dundas, Stormont and Glengarry, Leeds and Grenville, Frontenac, Lennox and Addington, Lanark, Renfrew, Carleton and Russell and the City of Kingston.

This office continues to be utilized as a source of information and a public health centre to a much greater extent than in former years, both by letter and telephone.

The district has been thoroughly inspected in a routine manner during the year, and the work has been greatly expedited by the supplying by the Department of an automobile for our work.

All the public institutions, thirty-four in number, have been inspected regarding their sanitary condition and a report sent to the Provincial Board, and where indicated to the governing bodies.

Calls for the investigation of special conditions arising at different localities in the district have been promptly responded to when at all possible and if found justified vigorous action taken. I desire to record the hearty co-operation and valuable assistance received from the inspectors of the Ontario Department of Labour, the Provincial Public Health Nurses, the Mothers' Allowance Board,

the Dominion Veterinary General's Department, the Dominion Anti-Tuberculosis Association, and the departments under the control of the Provincial Board of Health.

Typhoid Fever.—While no outbreak of typhoid fever occurred on such a scale as to be called an epidemic, this disease was fairly prevalent during every month in the year in some locality. While in most cases the source of the disease was apparent, quite a few cases occurring in rural localities were impossible to trace. These cases were mostly located in the townships of Osnabruck, Roxboro, and Cornwall in the County of Stormont. They were chiefly among farmers many miles distant from each other, generally one case in a household, and no history of the patient having been away from home to an infected district, or the presence of carriers. The eating of foods which had been handled by an infected person in transit, in the absence of any other probable source, might be credited as the origin of these outbreaks.

About forty cases occurred in Pembroke during the year. Apart from an outbreak occurring in a foreign quarter which was evidently caused by an infected well, all the other cases were evidently traceable to the municipal water supply. One defect in the water works equipment is that the intake which is over a mile in length is insufficient to supply the system in cases of emergency when a large volume of water is required, as in the case of a severe fire. Water has then to be pumped from near the shore line, where there is a good deal of sewage contamination, and results in all the town mains being contaminated for some days at a time.

Another defect is in the chlorination plant which is either antiquated or worn out and is subject to frequent break downs, allowing the mains to be filled at times with unchlorinated water. Outbreaks have occurred during the year which showed a clear connection between these occurrences and the beginnings of the disease.

The attention of the town council has been repeatedly directed to existing conditions, and while much local interest both in the press and among the people has been aroused, in my opinion no adequate steps have been taken to properly guard the purity of the town water supply.

Westboro; several cases have occurred in this locality notwithstanding the greatest vigilance exercised by the local health authorities. For many years in my annual report, I have referred to the danger existing in this suburb of Ottawa City.

It seems incomprehensible that the City of Ottawa of its own volition (for this locality is quite willing to be annexed to the city) should allow a suburban district, containing from ten to fifteen thousand people, to be established without municipal sewage or water system on the high lands that drain into the river above the locality from which the city takes its own water supply. Even from a business point of view as ordinarily understood, it would be thought there should be no hesitancy. The people are of an unusually high class, exceptionally well housed, with good schools, one recently erected cost a quarter of a million dollars, and the total assessment must exceed most cities of a corresponding population.

Yarker; an outbreak occurred in this village in August from an infected well, in all there were nine cases. Several other cases in the surrounding country originated probably from the same source. Napanee, which gets its water supply near the mouth of the same river on which Yarker is situated, had a few cases, although precautions were taken at as early a moment as possible to inaugurate preventative measures in the town.

Iroquois; there were eight cases in this town due to the use of canal water. The river intake was out of order and water was pumped direct from the canal during the period of navigation. The local health authorities ordered all water for domestic consumption boiled, but the outbreak occurred nevertheless owing, evidently, to the negligence of some of the water users. A fatal case at Cardinal, just above Iroquois, had history of infection from the Iroquois water supply.

Mountain; eight cases at Holwell Corners near Mountain were traced to the use of water from a common village well, near which was a privy vault used by five other persons who in former years had typhoid; evidently some of these parties were carriers.

Every suspected case of typhoid, about four hundred in all, for whom the Widal test had been made, was investigated whether the report was positive or not. While during the year a much larger number of typhoid cases came under notice, owing to the new regulations, I am of the opinion that there were fewer than in former years.

Smallpox.—During the year more localities were visited by smallpox than usual, but few cases occurred in the aggregate. This can be accounted for by the greater number of vaccinations during recent years, and the more prompt action by the local health authorities. The only exception to the latter was in and around Athens, where great laxity was shown for some time in making a diagnosis and in coping with the disease.

Perth and vicinity had twelve cases, and at least two thousand were promptly vaccinated.

Carleton Place, one case, and practically all the children were vaccinated.

Athens, fifteen cases with six hundred vaccinated.

Almonte and Williamstown, one case each and vaccination was thoroughly carried out.

Rockland, ten cases all in one family; practically one hundred per cent. of the children vaccinated.

Eastview, one fatal case with infection traced to Windsor. We had also three deaths from haemorrhagic cases traced to the Sudbury outbreak.

Renfrew; one case in the hospital which was brought from Whitney, Ontario. I investigated this outbreak in Whitney in the unorganized territory and found several cases. Excellent work was done by officers and nurses of the Department in cleaning up the situation there, but subsequently it spread to Barry's Bay in No. 5 District, where about ten cases developed. Strict quarantine and thorough vaccination prevented its further spread eastward, and at the end of the year there were no cases in No. 5 District.

I estimate that there were at least five thousand cases of chicken-pox in the district during the year and at times running concurrently with the smallpox, required frequent visits to aid the local health officer in making diagnosis.

Goitre.—Acting on instructions from the Provincial Board, a survey as to the presence of goitre in District No. 5 was carried out during the month of February. Every municipality sent in a considered estimate as to the prevalence of goitre, especially among the children.

The percentage varied greatly, the maximum estimate being 35 per cent.

In one large town, assisted by two nurses, I examined all the school children and found enlarged thyroid in 18 per cent. of the girls and 12 per cent. of the boys.

As it is now a pretty well established fact that this condition is preventable by a very simple treatment, I have advocated in addresses, to Women's Institute and other meetings, that communities undertake to provide this remedy for all

their children. We have already made a start in one locality where the percentage of enlarged thyroids is very high.

Chest Clinics.—In company with Dr. Brink of the Provincial Board, demonstration clinics in diagnosis of diseases of the chest were given in Hawkesbury, Rockland, Renfrew, and Pembroke.

Many times the number of patients that could possibly be examined applied at the clinics. Strong representations were made by the local physicians and social welfare agencies to induce the Department to establish such clinics at convenient points on a permanent basis.

Owing to the generosity of the Canadian Tuberculosis Association, the local hospitals and Rotary clubs, two chest clinics have since been permanently established, one at Pembroke and one at Brockville. The one at Pembroke is held once a month and that at Brockville twice a month. In the latter town one clinic is for patients in the town and the other for patients in the rural parts of the counties of Leeds and Grenville. Both clinics are under charge of Dr. Bruce Hopkins of the Mowat Sanitorium, Kingston, who attends them personally. No charge is made to the patients and each clinic shows an added interest by the physicians and their patients.

Among the physicians in the smaller towns and villages there is an active demand for a travelling clinic with a portable *x*-ray outfit. If the Department or some private agency would supply the outfit, the staff of the Mowat Sanitorium agree to take care of and operate it.

Public Health Nurses.—During the year the nurses from the Department of Maternal and Child Welfare, under the direction of Miss Power, gave noteworthy demonstration in this district. Every assistance possible was given by me as District Officer.

Miss Squires has devoted her time to a complete County Demonstration which is not yet quite finished. The county selected for this work was Glengarry. As this was the first County Demonstration attempted, I spent considerable time to aid in making it a success. As a whole this was the finest demonstration ever given in the Province.

During the summer a Public Health week was held with headquarters at Alexandria. As the details of the Health Week will be given in the report of the Division of Maternal and Child Welfare, I will omit it here.

I wish to state, however, that no effort of the Department has ever met with such unqualified approval from the people and physicians, and the minister and those taking part.

Summer Resorts.—Our many beautiful summer resorts have been more generally patronized during the summer than in past years. The building of the Good Roads System no doubt had much to do with the influx of tourists.

Besides personal inspection the local Health and Sanitary Officers have been encouraged to take a more active interest in these resorts particularly to guard against the contamination of the waters. Summer residents now appreciate and are very thankful for the stringent regulations enforced.

The following are the chief summer resorts in this district, all of which have been carefully inspected and supervised: Thousand Islands, Stanley Island, Hamilton's Island, Colquhoun's Island on the St. Lawrence. The Rideau chain of lakes, including Jones' Falls and Chaffies, Charlton Lake, Christie's Lake and resorts along the Ottawa.

To give the work in detail attended to from this office would require a very lengthy report. In making routine inspections and others at the request

of Health Officers, Boards of Health, Municipal Councils and residents, I have visited in some cases many times, but at least once, the following localities: Ottawa, Kingston, Cornwall, Brockville, Smith's Falls, Perth, Carleton Place, Arnprior, Pembroke, Napanee, Gananoque, Hawkesbury, Rockland, Alexandria, Renfrew, Kemptville, Prescott, Morrisburg, Cardinal, Iroquois, Athens, Lancaster, Vankleek Hill, Fournier, Plantagenet, Alfred, L'Orignal, Bourget, Pendleton, St. Isadore, Caledonia, Maxville, North Lancaster, Williamstown, Apple Hill, Dunvegan, Summerstown, Roxboro, Newington, Finch, Crysler, Winchester, Morewood, Chesterville, Williamsburg, Mountain, South Mountain, Edwardsburg, Mallorytown, Rockport, Delta, Elgin, Crosby, Portland, Sydenham, Harrowsmith, Yarker, Odessa, Westbrook, Bath, Bathurst, Calabogie, Douglas, Osceola, Barry's Bay, Whitney, Almonte, Richmond, Embrun, Westboro, March, Russell, Metcalfe, Eastview, Sharbot Lake, Pittsburg, Portland Township, Harrowsmith, Bastard and Burgess, South Gower and Clarence Creek.

ANNUAL REPORT TO THE DEPARTMENT OF HEALTH, DISTRICT NO. 6

W. Edgerton George, M.D., District Officer

I have the honour to submit herewith my annual report for 1924, for Health District No. 6.

Organization

Five hundred and thirty-seven surveyed townships, large areas unsurveyed.

There are eighty-four organized municipalities with the following Public Health supervision:—

84 organized municipalities.
38 towns and villages.
46 townships.
48 physicians acting as part time medical officers.
83 sanitary inspectors—7 only full time.
6 public health nurses—in larger towns.

Departmental Supervision of District:—

District officer.
2 sanitary inspectors (1 part time).
2 public health nurses.
1 laboratory. Staff—Director, assistant, stenographer.
1 venereal disease clinic—North Bay.

Early in January I wrote to the medical officers of health in all of the larger towns within the district pointing out the value of the Schick test in separating the immune from the non-immune to diphtheria, and urging the use of toxin-antitoxin for those who react. It was pointed out that it was advisable to immunize as early in childhood as possible.

With the exception of measles, there were no extensive epidemics in the district during the year.

One small outbreak of smallpox at Cochrane is deserving of special mention, as the type of case was so different to the usual mild run of cases which has been common in Northern Ontario for the past twelve years. There were eighteen cases in all, with five deaths; all were severe. There were no mild cases. There

were more deaths from smallpox in this small outbreak in February than in the previous twelve years. No patient was attacked that had ever been vaccinated.

Tuberculosis.

During the year a number of indigent tubercular patients were sent from unorganized territory to the Sanitoria at Weston and Gravenhurst at the expense of the Board.

Maternal and Child Welfare

In the week of February 19th, a clinic was held in Cobalt. The clinics were held in different parts of the town and were packed with mothers and children.

Another successful clinic was held in Timmins.

The clinic has proven a splendid method for the closing of the nurse's demonstration of public health nursing in a community, as it gives the public a view of the value and importance of the work which she has been trying to carry on among them during the weeks of her effort.

From the rural work done in this district I am convinced that here is the most valuable field of usefulness for the public health nurse. Away from the centres where medical aid is promptly available, the mother doubly requires instruction.

Milk Supplies

Sudbury's milk supply was suspected of being the cause of tubucular glands in a considerable number of patients. There was information of eighty to ninety cases. I went to Sudbury early in June to consult with the authorities there regarding this rumour. On the 15th of the following month visits were made to all the dairy barns where milk is produced for Sudbury. Mr. Frank Rathrey, the municipal sanitary inspector, accompanied me. The result of my inspection indicates that Sudbury's milk supply was well handled at the producer's end and will compare favourably with the methods of production used in Toronto. But this is not sufficient to guard against tuberculosis. To protect against this danger, either of two methods is employed, or a combination of the two. First—Pasteurization. Second—Tuberculin tested herds. There are certain legal difficulties in the way of tuberculin testing, so I advised the municipality to insist on the pasteurization of all milk sold in the municipality as the method most efficient and least costly. It forces the producers to market their milk through depots, but the dairymen usually know how to handle such commercial matters effectively.

Other milk supplies in the district were free from complaints until late in November when six cases of typhoid occurred in Cobalt, where they were suspected of originating from one dairy. The cases were spread out in various parts of the town. All got their milk supply from one dairy. When the medical officer investigated he found that the dairyman was buying milk from a number of producers who were not licensed. All those in any way occupied in the handling of milk sold by this dairy were given the Widal test, but none reacted. Some of the small producers were located along Mill Creek, which carries Cobalt sewerage. It was thought that possibly one of them had used this water for washing cans or bottles. The medical officer closed the dairy until the investigations were complete and only allowed the reopening after guarantees were given that milk would only be purchased from licensed producers. All the cases occurred within two or three days. There were no deaths.

Laboratory

The number of specimens examined at the Branch Laboratory of this district was over 6,000, or approximately 50 per cent. increase over last year.

Water Supplies

Haileybury.—Water samples from Haileybury were not satisfactory, as the laboratory information caused some anxiety. This was the more difficult to understand as the water is both chlorinated and filtered. I went to Haileybury to investigate. The pumps are in a separate building from the filters. The chlorine is injected into the intake near the pumps. Tests for chlorine made in the pumphouse were satisfactory, showing plenty of residual chlorine after fifteen minutes. The filters are not more than seventy-five to one hundred feet from the pumps. Tests taken after passing through the filters showed no chlorine. The water passes through the filter in approximately one to two minutes after being pumped. The organic matter collected in the filters has such an affinity for chlorine that there was no free chlorine left after passing through them. The association of the chlorine and water for from one to two minutes is insufficient to sterilize. They were accordingly advised to push the chlorine until there was a minimum residual in fifteen minutes after passing the filters. Samples taken subsequently were much more satisfactory but the quantity of chlorine used was seriously objected to by the municipal council. Our Engineering Division then adjusted the dosage by cutting the quantity of chlorine used, leaving a reasonable margin of safety.

North Bay.—North Bay got their chlorine plant into operation in April. At the beginning its continuous operation was interrupted by the installation of a new pump at the pumphouse. The interruption was immediately noted by the increase in digestive disturbances, especially among infants and children. The North Bay supply was showing increasingly dangerous each succeeding year. The town is to be congratulated that they have installed their chlorine equipment before serious results have occurred.

Burk's Falls.—The town of Burk's Falls obtains its water supply from Reazen Lake. The water contains a large quantity of organic matter and is dark in colour and is repulsive in taste and odour. The Department's Sanitary Engineering Division, at the request of the town and this office, gave the municipality considerable assistance in the hope that the filter installed there some years ago could be put into commission. They found great difficulty in securing a coagulant that will precipitate sufficiently fast to make the filter effective.

Timmins.—The Hollinger Mine found it necessary to put in a large pumping plant to supply their requirements in the mill, and they offered to pump the town's supply at a cost basis. This arrangement was put into operation and the total output of these pumps is chlorinated. The town's supply is therefore safer than at any previous time.

Kirkland Lake.—A new water system was completed during the past year for Kirkland Lake. Efficient provision of chlorination was a requirement of the installation. The results were very satisfactory. Gull Lake was known to be exposed to the possibilities of pollution, but is the best supply in the neighbourhood.

Sewers and Sewerage Plants

North Bay.—West end septic tank was washed out during the freshet of the spring of 1923. A new tank was built in its place during the past summer. There has been some difficulty with it. The outlet was not large enough, so that it will be necessary to correct this in order to handle the extra quantities in the spring.

The east end tank has caused considerable nuisance by discharging on the shore. The difficulty was found to be in the outlet. Finally, a new and larger outlet was provided during the year which removed the danger of the recurrence of the nuisance.

Recommendations

Let me repeat again that the district officers require statistical data upon which an estimate of the value of the work accomplished can be arrived at. At the present time the district officer has no vital bookkeeping to show when the balance is on the right side. Statistical data is essential to good public health work, and I would respectfully urge your Board to arrange to provide promptly complete data to the district officers.

I would recommend that the sanitary inspectors in the Northern District be placed under the direct supervision of the district officer and that at least one sanitary inspector be appointed to each of the organized districts.

The public health nursing in this district is not being adequately met. The nursing staff has more than justified its existence, and it should be added to in sufficient numbers to do the work. I would recommend that three more nurses be added to this district.

ANNUAL REPORT, DISTRICT NO. 7, TO THE DEPARTMENT OF HEALTH

G. L. Sparks, M.D., District Officer

I have the honour to submit the following report of work done during 1924 in District No. 7, which includes the Districts of Thunder Bay, Rainy River, Kenora and Patricia.

Dairies

Thirty dairies (including three milk pasteurization plants) were inspected as follows:—

Port Arthur (and McIntyre township)	7	(including 1 pasteurizing plant)
Fort William	4	(including 1 pasteurizing plant)
Kenora (and farming area surrounding town)	11	(including 1 pasteurizing plant)
Keewatin (farming area surrounding town)	2	
Sioux Lookout	2	
Fort Frances	4	
Total	30	(including 3 pasteurizing plants)

The above-mentioned inspections were restricted mainly to equipment such as stables, utensils, and milk-rooms or milk-houses. Except for observations as to cleanliness of equipment and surroundings, it has been impracticable for me to carry on inspections in sufficient detail to accurately gauge the effects of the methods followed by the milk producers upon the sanitary quality of

municipal milk supplies throughout the district. Consumers are entitled to milk supplies that are reasonably clean and safe; and local authorities are faced with the responsibility of using every possible means to maintain continuous effective supervision over the sanitary quality of this food. I would repeat the observations contained in my annual report for 1923, viz.: that, "except for the sediment test, and a few bacterial counts at intervals, no routine laboratory supervision has been maintained during the year over the sanitary quality of municipal milk supplies in District No. 7. Fort William and Port Arthur at least have laboratory facilities available at the Provincial Board of Health Branch Laboratory in Fort William to enable the local authorities of these two cities to adopt some permanent system of bacterial counts." Owing to distances from Fort William this procedure would be more difficult for local health officials in the Districts of Kenora and Rainy River; but the full-time health officials of Fort William and Port Arthur have supervision over the milk supplies of between one-third and one-half the population of District No. 7. One of the most prominent public health authorities on this continent has stated that "the number of bacteria in milk is the best single index we have of its general sanitary character." (See page 776, Preventive Medicine and Hygiene, by Milton J. Rosenau, fourth edition, 1921.) The three following quotations from the "Third Report of The Commission on Milk Standards appointed by The New York Milk Committee" may also be of interest:—

(1) "On the subject of laboratory examinations of milk for bacteria the commission believes that the interests of public health demand that the control of milk supplies, both as to production and distribution, should include regular laboratory examinations of milk by bacteriological methods."

(2) "The Commission recognizes that the number of bacteria in milk is controlled in the majority of instances by three factors: dirt, temperature or age."

(3) "Because high bacterial counts indicate milk is either warm, dirty or stale, the bacterial count is an indicator of decency in milk character, entirely apart from its significance as an indicator of the safety of milk."

I am advised by the Director of the Provincial Board of Health Branch Laboratory at Fort William that he is in a position to do bacterial counts on milk samples collected by the local health authorities of Port Arthur and Fort William; and I shall continue in an endeavour to urge these local health authorities to send milk samples to the Laboratory at regular and frequent intervals for bacterial counts.

Three milk pasteurization plants were inspected during the year. Two plants (one in Fort William and one in Port Arthur) were found to be equipped with recording thermographs; but at the plant in the Town of Kenora a reading thermometer suspended by a string was apparently lowered into the milk at intervals during the process of heating, holding and subsequent cooling. This procedure made it necessary to open the lid on the pasteurizer every time a temperature reading was taken; and naturally no continuous record of temperature could be obtained, while the frequent opening of the pasteurizer did not lessen the possibility of contamination of the milk. The installation and operation of milk pasteurization plants should be under strict public health supervision, backed up by stringent regulations regarding temperature records, sterilization of machinery and containers, etc.; and also regarding medical inspection of employees.

It should also be made illegal for any person or corporation to offer for sale pasteurized milk unless every bottle of this milk be labelled as such, stating the degree of heat and the length of time, and the date on which the process

was done. Evidently we cannot hope for the immediate eradication of bovine tuberculosis from dairy herds; and if pasteurization is the most practicable method of destruction of pathogenic bacteria that may get into the milk during production, all milk pasteurization plants should be so regulated as to guarantee *pasteurized* milk free from pathogenic organisms at the time of delivery to the consumer.

Water Supplies and Water Purification

During the months of July and November, engineers from the Division of Sanitary Engineering inspected the municipal chlorine control plants operating in the district. I would recommend that these inspections be repeated every two months throughout the year. I would also recommend that the Department require the frequent sending to a bacteriological laboratory (at least three times a week) of tap samples collected from municipal water supplies where water purification plants are in operation, so that some degree of uniform bacteriological control may be maintained over the efficiency of such plants. In view of the fact that the Department supplies free of charge sterile containers in mailing tubes, municipal authorities will have no difficulty in meeting such a requirement as the Department's Branch Laboratories are maintained in different parts of the Province. As proof of the necessity for bacteriological control, in addition to the "Ortho-Tolidin" test (in use at each plant), I would direct attention to my report dated October 14th, 1924, *re* "Ineffective Purification, Municipal Water Supply, Rainy River Town."

Following your engineer's visit on July 26th, 1924, to the chlorine control plant in Rainy River Town, samples from municipal water supply sent (between July 29th, 1924, and October 6th, 1924) by the local M.O.H. to the Fort William Branch Laboratory showed pollution varying from colon bacilli in 20 c.c. to colon in 1 c.c. If a "purified" (chlorinated) water contains living colon bacilli, what proof have we that living typhoid bacilli may not also be present? The real standard of safety is a "sterile" water; and the bacteriological control is the ultimate check upon the efficiency of water purification plants.

I may say that the chlorine control plants at Port Arthur, Fort Frances and Kenora have apparently been operating efficiently throughout the year; although the Port Arthur Medical Officer of Health is the only local medical officer of health having jurisdiction over a water purification plant who sends water samples to the Laboratory at anything like an approach to sufficiently frequent intervals.

During the year the Canadian National Railways installed a liquid chlorine control apparatus in connection with their water supply at Sioux Lookout. Owing to the fact that when the pump stopped operating air was drawn in through the chlorinating machine to the suction pipe and the pump lost its prime, the water supply was being chlorinated for only eight hours out of the twenty-four, or only when the pumphouse operator was on duty. An attempt has been made to remedy this defect by the installation of a new foot-valve in the suction pipe; and it is hoped this will permit the chlorine control apparatus to operate during the entire twenty-four hours.

Between September 24th and October 1st I accompanied Mr. G. A. H. Burn (Division of Sanitary Engineering) on an inspection carried on in the city of Fort William for the purpose of ascertaining the extent of compliance with the Provincial Board's "Regulations Governing the Connection of Auxiliary, Railway, Factory or Other Supplies, including Fire Protection Systems, or Apparatus with a Municipal Waterworks System, the Distribution of which is for Public, Domestic or General Use." Needless to say it is of the utmost

importance that the above-mentioned Regulations be strictly enforced so as to prevent the possibility of polluted water from the Kaministiquia River gaining entrance at any time to the Fort William city mains. Mr. Burn carried on similar inspections at Port Arthur, Kenora and Fort Frances.

It is becoming increasingly difficult to maintain effective supervision over the water supplies of small communities where chlorination or other water purification plants are not in operation. In some instances it would appear that chlorination is the only practicable method to ensure a safe supply of water for domestic purposes. I would repeat the recommendation made in my annual report for 1923 regarding sanitary surveys of Nipigon and Ignace by a field party from the Division of Sanitary Engineering. It is out of the question to attempt personal supervision of private water supplies obtained from wells, springs, etc.

Sewage Disposal

Conditions as to sewage disposal were practically the same as during the previous year. The Fort William sewage outfalls at the Neebing River have been provided with extensions so that the raw sewage is carried directly into the river instead of being discharged upon the banks as had been the case owing to low water during the early part of the summer.

Two cities and two towns in District No. 7 discharge raw sewage into waters used as sources of public water supply. Economic conditions no doubt prevent an immediate change from this method of disposal; but in the meantime the wording of Section 91 (ninety-one) of the Public Health Act might be brought more into accordance with the facts as they exist.

Night Soil, Manure and Garbage Disposal

During the year I have endeavoured to impress upon local authorities the importance of strict attention to effective supervision over municipal nuisance grounds. The Keewatin municipal nuisance ground showed considerable improvement as a separate area has been set apart for night soil which, on the date of inspection, was found to have been buried in shallow trenches. The long severe winter season in this district compels a general spring clean up of garbage and rubbish; also a general cleaning out of privies and outhouses. The effective disposal of night soil is a difficult problem during the winter months.

Summer Resorts

During the season I accompanied Dr. C. N. Laurie, M.O.H., on an inspection of four summer resorts in the Municipality of Shuniah. Sanitary conditions at Ishkabibble Beach and Green Bay Beach showed considerable improvement over the previous year owing to the appointment by the municipality of a full-time sanitary inspector for the months of July and August. Sanitary conditions at Loon Lake were not so bad as during 1923; but on the date of inspection it was found that much remained to be done if Loon Lake is to become a sanitary summer resort. Conditions at Birch Beach were fairly good owing to the small number of cottages and their isolated position.

Sanitary Inspection of Schools in Territory Without Municipal Organization

During the year sanitary inspections of eight schools in territory without municipal organization were completed and reports forwarded.

I was accompanied on six of the above-mentioned inspections by Mr. W. C. Millar, Provincial Sanitary Inspector. Until adequate local health machinery is created for the unorganized agricultural townships thrown open for settlement, effective public health supervision over this territory will be a practical impossibility.

Communicable Diseases

About August 1st I received a letter from the Department suggesting that I discuss the matter of weekly reports with the secretaries of the local boards of health and try to arrange to have reports sent in weekly, especially asking that "nil" reports should be rendered. Up to the end of 1924 I have personally visited ten (10) secretaries, a few of whom appear to be reporting more regularly, as more weekly cards are being returned to this office from the Department. However, I believe that section twenty-four (24) of the Public Health Act should be amended so as to make it compulsory for the secretary of every local board of health to send reports weekly including the rendering of "nil" reports when there are no communicable diseases or deaths during any particular week.

Smallpox was reported from six municipalities in the district; but the total number of reported cases did not exceed fourteen. Immediately following the appearance of one case of smallpox in the town of Rainy River, a proclamation signed by the Mayor was issued under authority of Section 12 of the Vaccination Act, calling upon every resident of the town who had not been vaccinated within seven years to appear for vaccination; and I was informed that the proclamation was generally obeyed. No fresh cases of smallpox developed in the town of Rainy River during the balance of the year; and the local authorities of that town are to be congratulated upon their prompt measures for the suppression of the disease. During the early part of the year I endeavoured to impress upon local boards of health the importance of enforcing Section 13 of the Vaccination Act, regarding the vaccination against smallpox of children attending school; and I have been advised that this section of the Act has been enforced in many municipalities throughout the District.

The local authorities of Fort William, Port Arthur and Fort Frances have published notices in the newspapers requesting the public to comply with the requirements of Section 8 of the Vaccination Act regarding the vaccination against smallpox of children at three or four months of age; but I have yet to observe any marked tendency on the part of the local authorities throughout the district to enforce a general observance of this section of the Act.

There was a considerable increase in the incidence of diphtheria over the previous year. The general conferring of an active immunity by means of toxin-antitoxin would no doubt reduce the incidence of diphtheria; and the work carried on by Dr. R. M. Boyd, M.O.H., Fort William, is an example of what may be accomplished. I am advised by Dr. Boyd that during the year he gave the complete series of toxin-antitoxin inoculations to more than a thousand children attending school in the city of Fort William; and of these, three have shown symptoms of diphtheria.

During the spring a serious outbreak of typhoid fever occurred among the members of a C.P.R. bridge gang employed on construction work at Jackfish (Unorganized), in the District of Thunder Bay, and eleven cases of typhoid fever were reported. I visited Jackfish and, so far as I could learn, the infection must have been contracted at Jackfish, presumably from drinking water polluted by storm drainage during the spring thaws, or possibly from a typhoid "carrier" employed in one of the kitchens. The epidemic was finally brought under control after strenuous work upon the part of Dr. H. S. Crowe, of Schreiber,

who inoculated (with anti-typhoid vaccine) between fifty and sixty C.P.R. employees at Jackfish. This outbreak of typhoid fever at Jackfish illustrates the extreme danger existing in District No. 7, owing to the lack of sanitary supervision over railway bridge gangs, extra gangs and maintenance-of-way gangs working in territory without municipal organization. These gangs move up and down the lines and are housed as a rule in converted box cars. If these gangs come under The Provincial Board of Health "Regulations for the Sanitary Control of Mining Camps, Saw Mills and Other Industries situated in the Unorganized Territory" (see page 20, Regulations), I would recommend that the Department require railway companies to comply with the Regulations regarding Sanitary and Medical Contracts. If the above-mentioned Regulations are not applicable, they should be amended so that the railway companies will be compelled to contract for sanitary supervision and medical care of all gangs working in territory without municipal organization.

During the year I have got in touch with all private physicians in the district who have sent blood specimens to the Provincial Laboratories for Widal Test, whether the report was positive or negative; and have communicated the particulars to the medical officers of health of the municipalities concerned. Detailed reports of these investigations have been forwarded to the Provincial Board of Health.

I would again emphazize the need of a sanatorium in District No. 7 for cases of tuberculosis. During the year five indigent patients from territory without municipal organization were sent to the Toronto Hospital for Consumptives at Weston, the expense of their removal and maintenance being a charge upon the Department. As specified earlier in this report, about one-third the entire population of District No. 7 live in territory without municipal organization; and it is doubtful whether we can hope for the early establishment in this district of a sanatorium under the arrangements at present specified in the "Sanatoria for Consumptives Act."

I would say that throughout the year I have notified local medical officers of health regarding all positive sputum reports received from the Provincial Laboratories.

During September and October the Provincial Board's Travelling Diagnostic Chest Clinic visited the following municipalities in the district: Schreiber, Port Arthur, Fort William, Fort Frances, Rainy River town and Dryden town. The clinic was under the supervision of Dr. G. C. Brink, assisted by Nurse Bricker. This valuable service should be continued in District No. 7 during the coming year.

In our efforts to prevent the spread of scarlet fever in District No. 7, we have had to depend entirely upon early diagnosis, quarantine, isolation and disinfection; and—in the absence of laboratory means—a more or less hopeless attempt to detect scarlet fever "carriers." There was a considerable increase during the year in the number of reported cases of scarlet fever over that of 1923.

The periodical epidemics of measles among children illustrate our utter inability to prevent the spread of this disease by isolation and quarantine.

Medical Inspection of Schools

During the month of August I attended a conference in Toronto, relative to School Medical Inspection which had recently come under the jurisdiction of the Department. Soon after my return to Fort William I visited the following municipalities in an endeavour to have this work undertaken by the local boards of health and school boards, according to the plan approved by the

Provincial Board of Health: Schreiber, Nipigon, Dryden, Kenora, Keewatin and Sioux Lookout. I was given to understand by the Local Board of Health of the town of Sioux Lookout that a full-time nurse would be appointed, providing the five hundred dollars grant were available from the Department. The Medical Officers of Health of Sioux Lookout and Dryden signified their readiness to proceed to Toronto to take the two-day course of instruction in school medical inspection to be put on at the expense of the Provincial Board of Health; and the local boards of health of these two municipalities gave their approval.

It will be impracticable to attempt the medical inspection of schools in territory without municipal organization until such time as a staff sufficiently large is created to undertake this work as a routine procedure.

Public Health Nursing

Two permanent Provincial Public Health Nurses have been on duty in District No. 7 since the spring of 1924, Miss Veitch being in charge of the Dryden area in the District of Kenora, and Miss Murphy being in charge of the area adjoining Port Arthur and Fort William, in the District of Thunder Bay. Child Welfare Clinics were put on in Kenora, Keewatin, Fort William and other centres during the season. Dr. W. J. Bell, Pediatrician, Division of Maternal and Child Welfare, was the physician-in-charge at each clinic.

I would recommend that three Provincial Public Health Nurses be the minimum number of permanent nurses in District No. 7—one each for the Districts of Rainy River, Kenora, and Thunder Bay.

Provincial Branch Laboratory

During the year Dr. N. O. Thomas, Director of the Provincial Board of Health Branch Laboratory at Fort William, has supplied me with copies of all Water Analysis Reports, Widals (positive and negative), positive Sputum Reports and positive Reports of Diphtheria Swabs (diagnosis), in addition to any special reports necessary. The laboratory is an important link in public health work in the district; and it is difficult to see how effective public health work could be carried on in its absence.

ANNUAL REPORT FOR 1924, DISTRICT No. 8

H. W. Johnston, M.D., District Officer

I beg to submit the following report of Public Health work in District No. 8 during the year 1924:

Communicable Disease Control

As in previous years much time has been taken up attempting to control communicable diseases and from the standpoint of checking outbreaks, before the development of an epidemic, it has been the most satisfactory period since the district was established. Only three outbreaks during the year could be classed as epidemics, namely, smallpox in the town of Chapleau and camps in the surrounding territory and measles in the village of Cutler and the town of Espanola, from which 563 cases were reported. In no other instance during the year has there been more than a few isolated cases.

Early in the year a circular letter from the Provincial Board of Health to all secretaries of the local boards of health, gave a very decided stimulation to regular weekly reporting by municipalities. It has resulted also in securing more accurate and regular attention to the regulations by physicians and health officers, because the secretary has found it necessary to secure co-operation in order that he might make his reports reasonably accurate. From the standpoint of local management these more complete reports have also been responsible for more care being taken in regard to reported cases than was formerly taken with cases that came only to the attention of the physician in charge. I believe that if the regulations called for these weekly reports to be mailed directly to the District Officer of Health and by him forwarded to the Provincial Board, the reports would be still more useful by saving several days in the time which it takes them to reach the district office. The value of this early information has been demonstrated a number of times during the year in connection with cases of typhoid fever and diphtheria, where very early information was received from the Provincial Laboratory on Widal reactions or positive swabs. A number of times when these reports have been received it has been possible to secure information regarding the primary case or carrier of diphtheria, or a common source of infection in typhoid, before the condition had become widespread.

The only particularly serious outbreak of communicable disease during the year was the epidemic of smallpox in the Chapleau area during February, and continuing into March and April. The epidemic was unquestionably due to one undiagnosed case which was responsible for spreading infection directly to a hotel staff, railway employees, Indian trappers, and men and families connected with lumber camp operations. The type of case was quite as infectious and as virulent as those reported from the Border Cities about the same time. The epidemic was controlled by general vaccination and by taking every possible means to locate and keep contacts under observation.

Tuberculosis

Special attention has been given to the care of tuberculosis cases and some progress has been made in demonstrating the value of early diagnosis and treatment, and prevention among families exposed. In unorganized territory the results have been particularly gratifying where, in a considerable number of cases, the Province has provided hospital treatment for patients unable to meet any of the expense. Tuberculosis cases in unorganized territory are usually in poor financial circumstances with large families in small homes.

A most interesting investigation is being carried on under the direction of the Provincial Department of Health, in order to secure information on a series of chest conditions—a number of which were fatal—apparently due to dust in a silica quarry near Sault Ste. Marie. The information gained so far would indicate that there is a higher incidence of tuberculosis in Northern Ontario than we were aware of, and that on this account there have been few facilities for taking advantage of the particularly suitable northern climate in treatment. It is also apparent that a larger Public Health Nursing service is required to supervise home treatment of both patient and contacts.

Venereal Disease

Through the facilities for treatment of venereal diseases provided by the Sault Ste. Marie Clinic, it has been possible to care for a considerable number

of cases from outside the city. In nearly all cases that have come to our attention, we have been able to secure attendance at the clinic or to arrange for treatment by a practising physician in the district. Employees in lumber camps still cause the most difficulty among untreated cases and medical camp contracts usually exclude treatment of venereal diseases from the duties of the contract physician. In two instances, also, it has been impossible to secure the attendance at the clinic of cases of venereal diseases returning to their homes from Provincial Institutions. This difficulty arises from the expense entailed in providing transportation and travelling expense from their homes to the clinic.

In connection with Social Hygiene Education an exceedingly valuable demonstration was held in March through the co-operation of the Social Hygiene Committee, Provincial Board of Health, and District Medical Society. The exhibit was well attended throughout the ten days of its showing and was appreciated as being a most valuable means of teaching Sex Hygiene to the public.

Goitre

On instructions from the Provincial Board of Health a casual survey of the prevalence of goitre was made covering the district. Two interesting facts were brought out in the information secured:—

(1) The almost complete absence of goitre arising on the northern watershed, and

(2) The unusual prevalence in communities situated along the main rivers draining to the south—particularly the Spanish and Thessalon Rivers. Goitre was also very prevalent on St. Joseph's Island, and here a number of school sections with the co-operation of the local Medical Officer of Health have undertaken to provide sodium iodide as a prophylactic measure.

Public Health Nursing

Child Welfare activities have been carried on in the district. Demonstrations of school nursing with careful follow-up work in the homes has been particularly valuable in this section.

Sanitary Supervision

Inspections were made in Webbwood, Goulais Bay, Hilton, Little Current, Point Aux Pins, Basswood Lake, Algoma Mills, and Manitowaning. Opening up of motor roads through Algoma, Sudbury and Manitoulin Districts has rapidly increased tourist traffic throughout the North Country, and hotels that are able to accommodate the resulting trade are much encouraged to make the necessary improvements.

Industrial Health Services

The employment of a Public Health and Industrial Nurse by the Austin and Nicholson Lumber Company and the steadily improving general health programme carried on by the Industrial Relation Department of the Spanish River Pulp and Paper Company in their plants at Sault Ste. Marie, Espanola and Sturgeon Falls, have been the two principal activities in this branch during the past year. I have been able to assist in this work through frequent conference with management and employees. During the year the Spanish River Company have extended their programme, begun in Espanola, by the appointment of a full-time plant nurse at the Sault Ste. Marie mill. An outline has

been prepared for adding a service of regular physical examinations of employees. This plant has been endorsed by employees and returned to the management for completion of details. I consider that no more important type of work has been carried on than this. The Public Health Education necessary to introduce these programmes is, in itself, worth much time and effort in the general programme of health promotion. The reasons for and the value of regular health examination had to be "sold" to probably two thousand employees before the company could satisfactorily complete arrangements.

Health in Schools

Interest has been increased in regard to the value of health work in schools, and following a conference with Dr. Phair in August, I took the opportunity to bring this work to the attention of the health officers throughout the district. The co-operation, as outlined between the Department of Education and the Department of Health, was entirely approved. I hope it may still be possible for the Department to give the proposed short course on School Medical Inspection to a number of interested health officers.

This year again an opportunity was given to attend a two weeks' series of Rural School Fairs on Manitoulin Island. During the afternoon of the fairs the Public Health Nurse arranged for weighing and measuring the pupils and pre-school children and for distribution of suitable health literature. In the evening of each day a public health meeting was arranged, where the Department of Agriculture representative provided moving pictures as an added attraction. These fairs provided a particularly favourable opportunity for Public Health Demonstration, as we were able to meet the children with their parents as well as the school officials, and to discuss actual health problems of both the family and the community.

Opportunity for health demonstration in schools was also afforded, through invitations from school boards in unorganized territory, to have the children of certain schools vaccinated. On these occasions time was given for bringing general health information to those present. On several occasions also, I have accompanied the Inspector of Public Schools where particular health problems or sanitary conditions required attention.

There is still a big opportunity for more of this work to be carried on in schools where there is no municipal organization, but the amount of other general work demanding attention over these large areas has so far prevented any systematic programme being arranged, which programme should include regular physical examination of all pupils. This would also require additional Public Health Nursing Staff to follow up the findings in the relation to reported conditions and to assist in arrangements for corrective treatment where indicated.

General Health Education

Other opportunities for keeping health matters before the public have been used:

Each year an exhibit at the Agricultural Social Fairs of Bruce Mines and Sault Ste. Marie is used to interest the public in various phases of Maternal and Child Welfare—Laboratory Service—Communicable Disease Prevention—and Rural Sanitation.

During the winter months moving picture films supplied by the Board of Health were used in places where picture machines were available. In addition to the value of the picture, the films always assure a good attendance on any occasion where health matters are being discussed.

Among other activities allied to Public Health work I was able to assist and co-operate with the Red Cross Society in arranging for a series of home nursing classes in Sault Ste. Marie and, in the preliminary arrangements, for two nursing outposts established in Algoma District at Thessalon and Richard's Landing. These outposts meet a very definite need in supplying a combined service for hospital care and community health.

I was also permitted to work with a committee of the Sault Ste. Marie Rotary Club in their programme for providing clinics and caring for crippled children. Patients from various places in the district were included.

Throughout the year many conditions have arisen requiring co-operation with nearly all the welfare and relief organizations of the district, including both the official departments and voluntary societies, where health problems have arisen.

Each year when summing up the results of the year's work in the district, the fact always recurs, that so many things have had to be left over owing to the size of the field and many opportunities for extending and improving the health service have to be missed owing to lack of time and the long distances to be covered. When conditions warrant a District Health unit for each Judicial District in Northern Ontario, on lines similar to those proposed for county health units, it will be possible to give a much more satisfactory health service —particularly in the large unorganized sections which are a more direct responsibility for the District Officer of Health.

ANNUAL REPORT

Alex. R. White, Chief Sanitary Inspector

I have the honour to submit for your consideration the eighth annual report showing work performed by your sanitary inspectors during the year just closed.

I also submit such conclusions as may have been formed during the year's work.

The report covers and provides for the establishment and maintenance of good sanitary conditions among the lumber camps, mines, saw mills and construction companies scattered throughout Northern Ontario, and also provides for and supervises the medical service which exists for the benefit of the men employed by these industries. The staff of inspectors undertakes, in addition, sanitary work among the small towns and villages which are continually springing up around our large sawmills.

It is very gratifying to again be able to report continued progress, and to say that no serious setback or interruptions have been encountered. On the contrary, I believe industry has shown during the year, in a most convincing manner, its approval of the governmental policy as announced by your officials. I am also convinced that as each year passes the co-operative bond between your officials and industries is further strengthened and relations become more cordial.

I find organizations such as the Canadian Pulp and Paper Association, the Canada Lumbermen's Association and Accident Prevention Association now taking a very active interest in our work. Such organizations have, during the past year, co-operated with us to the fullest extent. I find that in dealing with our large northern industries every opportunity must be embraced that may

help or permit us to fit such health programmes as we may contemplate for the year into such plans as are being developed by the industrial organizations already mentioned. The development of such a policy would undoubtedly stimulate the industries to greater effort. This is especially desirable, since much of our thought must now be concentrated on a solution to the many contributory sources which cause lost time, and more particularly sickness (not communicable), preventable accidents and labour turnover. To make but a slight reduction in any or all three of these items would permit of an annual saving of many thousands of dollars to the industries. It is not possible, however, for the Department to even assist in this work unless upon some partnership basis. For example, any attempt to reduce the period of disability arising out of accident cases, followed by the infection of some minor axe cut, requires the co-operation of the accident prevention organizations, the company physician, together with the camp management, before the issue can be even focussed.

Our success during the year easily equals, if not surpasses, our record of last year, which was by far our best year from the standpoint of accomplishment and the control of communicable disease. Our greatest gain, however, has been in the acceptance by industry of such services as we are able to offer and the admission that there is much sound business economy in good public health administration, provided a sufficient study is made to determine the kind of reform required and sufficiently convincing explanation offered to show clearly the advantages which are to accrue. It has been said that the advantages of good public health cannot be measured in dollars and cents, and while this may be true in a municipal sense it is not nearly so applicable when related to industrial health. The reason for this is obvious, as the municipal expenditure is financed by a multitude of taxpayers, the great proportion of whom pay small heed to cost or to value received. On the other hand, the manager of a large industrial concern must show a profit, if possible, in money either earned or saved as a justification even in the financing of a health programme. For this reason I contend the study of industrial health presents many added features and gradually takes on an aspect requiring, in addition to public health training, good business ability.

The placing of your group of inspectors under the Division of Industrial Hygiene continues to prove satisfactory, and many opportunities for study and the further development of health education among the staff is made available. It is also of great value to be able to refer problems difficult to the lay mind to our medical director and thus provide a solution to most of our problems. Without going outside of the division, I believe the present arrangement, being part lay staff and part medical, is a combination which should be able to cope with almost any situation which may arise. The usefulness of the Research Laboratory, which has been added during the year, should also prove of extreme value and will be used at times in connection with our northern work. The determination of a suitable and safe fumigant for the destruction of lice, roaches and bed bugs, available for use in lumber camps, etc., would solve a question which is of paramount importance to camp owners and is well worth the expenditure of considerable time and experiment.

Lumbering Statistics

Information supplied by the various Crown timber agents, by employers of labour and by your own staff of inspectors shows a total of 199 companies

operating and controlling, together with jobber and sub-jobber, 673 camps which provide employment for 31,387 men.

Added to this, we have situated also in the unorganized territory:

63 sawmills employing	4,963	men
4 paper mills employing	2,890	"
37 road construction camps employing	1,520	"
General construction and extra gang camps employing	6,556	"
68 mining camps employing	3,100	"
2 fishing stations employing	175	"

We have, therefore, a grand total of 269 companies which operate 843 camps and give employment to 50,591 men.

In connection with this work 246 medical and sanitary supervision contracts between physician and company have been accepted by the Department, together with an annual statement showing the extent and location of the operations. These contract or industrial physicians visit the camps or works once each month for the purpose of making a sanitary survey and also visit the camps as often as may be required for the treatment of such men as may be in need of service.

Under the Regulations such physicians are required, after each inspection, to forward a report showing the sanitary efficiency or otherwise of the camps visited, together with a freehand sketch setting out the conformation of the various buildings, slopes of the ground, water supply, drainage, etc. Such data enables the Department to pass judgment upon the situation, as it may not be possible for a representative to visit the works early enough to check up the arrangements upon the ground.

From 1921 onward there has been a fairly rapid increase in the amount of preventive work carried on by these physicians, so also has the number of reports received increased annually. I am sure also that a study of our case record from communicable diseases, which may be found on another page, should prove this contention.

The number of monthly reports received during the current year is 1,205, together with 375 camp sketches showing the construction of various buildings and the location of camp site. It should be here noted that oftentimes a physician's report dealing with the affairs of a single company may cover as many as fifteen camps. As a rule, however, a separate report is made on each camp.

The total number of inspections made by your staff of inspectors, covering camp sanitation, is 474. Additional visits have also been made, including inspection and re-inspection, to seventy-five towns and villages, six schools, fourteen dairies and 148 visits have been made to ships visiting Port Arthur and Fort William for the purpose of checking up the quality of water used on board. I might say this work was undertaken jointly with the Engineering Department of the Department of Health, Federal Government.

We have thus a grand total of inspections made during the year by the industrial physicians, added to those of your staff of inspectors, of 1,823.

It will be seen from these figures that the total visits made by the inspectors is substantially the same as our record of last year and represents almost the maximum in this regard. The visits made by industrial physicians, as indicated by the reports received, is, however, easily three times greater. This is partly explained by the increased demand for a better service by industry and a fuller knowledge of his duties by the physician, and partly by reason of our last annual report being on the basis of nine months rather than the full year.

Communicable Diseases

Our case record of communicable diseases shows a substantial reduction over last year and, save in one instance, was confined to sporadic cases occurring in men within the first two weeks of employment, indicating that infection took place before entering camp. The twelve cases of typhoid fever occurring at Jackfish we believe to be due to poor supervision on the part of the Canadian Pacific Railway. It is expected that arrangements will be completed in the near future which will, in a large measure at least, reduce such happenings in the future.

	Cases	Deaths
Typhoid fever	31	1
Smallpox	16	3
Diphtheria	6	..
Scarlet fever	2	..
Mumps	4	..
Total	59	4

Much lost time has been occasioned this winter due to the prevalence of the common cold. Almost every medical report shows a number of such cases treated and an average of from two to three days lost per patient. There is a singular absence of pneumonia arising from such cases, however, which would indicate fairly good attention on the part of both physician and management.

In my report of last year I made mention of the great improvements which had taken place in camp construction during the last five years, and also drew attention to my belief that much of this was occasioned by the good, workable standards set up by the Department, and to the improved service provided by the physician. This year I find another most important reform being put into effect, namely, the introduction of electricity for camp lighting. Ten years ago this was not thought possible. The temporary nature of the work and the annual moving to new timber stands seemed to be a barrier to the use of any other system of lighting than that supplied by the old oil lamp. This year, however, recognizing that increased comfort means contentment and that contentment usually increases efficiency, electrical installations have this year been provided in sixteen camps, and so well pleased are the owners with the experiment that it would seem once the equipment is arranged so that it may be taken down and transported without too much loss, the scheme bids fair to become a regular part of the camp equipment.

The installation of these lighting sets has another significance, however. The introduction of a gasoline engine necessary for the development of electrical energy will ultimately solve one of our biggest problems in camp life by making available a plentiful supply of hot and cold water under pressure, and thus promoting personal hygiene among the men. If this can be brought about a great step forward will be made that cannot but be productive of the very best results.

Much of my efforts have been directed to special examinations and to the establishment of good relations between industry and the Department. I have also visited each of the districts and have given such assistance as was necessary to each inspector, and at such times have checked up the progress being made and have offered such explanation for our actions as seemed proper. I am also trying to cover as much of my late district at North Bay as time will permit, but I am finding this increasingly difficult owing to the demands of my office work. The huge amount of correspondence occasioned in dealing with the enormous number of reports received, together with the carrying on of the regular

office work, is a large job in itself, and if you will add to this the time spent in advertising our public health activities, which is, of course, extremely vital, you will see at once that some addition to our staff may be necessary.

Such opportunities as have presented themselves for giving addresses on the subject of industrial health have been embraced. Several magazine articles have also been published which, I believe, may do much to explain our position. I believe also that opportunities to speak at industrial conventions will be more frequent in the future, and in this I also see signs that would indicate that we are about to take our proper place as part of the industrial unit, not as a detached organization as in the old days, but part of the operations, as necessary for the success of the undertaking as any other part. For these reasons, then, I contend that our position has been strengthened enormously during the year.

Much of our success comes, of course, from the good co-operative spirit shown by the staff of inspectors. Each of the inspectors has carried out his duties with vigour, enthusiasm and good judgment, and the fact that the huge amount of work shown in this report has been undertaken and brought to a reasonable conclusion, with but one reference to police court arbitration, speaks well for the organization and for the extreme usefulness of our work.

ANNUAL REPORT, 1924, DIVISION OF SANITARY ENGINEERING

F. A. Dallyn, C.E. (Toronto), Director

In presenting the annual report of the Division of Sanitary Engineering for 1924, I am taking the liberty of introducing a brief summary of what has transpired in the Province since the office of Provincial Sanitary Engineer was created in 1913.

Prior to 1913, there were some seven water purification plants in operation, viz.: 1889, Cobourg; 1893, St. Thomas; 1895, Chatham; 1900, Arnprior; 1910, Owen Sound and Weston; 1912, Toronto (slow sand), and some eleven points where chlorine was being used, viz.: 1909, Toronto, 1912, Amherstburg, Brockville, Chatham, Fort Frances, Kenora, Kingston, Midland, Orillia, Ottawa and Sarnia. To-day, there are forty-one purification plants, and ninety-six installations where chlorine is safeguarding the domestic supply. Those installed since 1913, include: purification plants, 1913, Haileybury; 1914, Wallaceburg; 1915, Orillia, Perth, Port Hope; 1916, Iroquois Falls, Niagara-on-the-Lake; 1917, Lindsay, New Toronto, Oshawa, Toronto (mech); 1918, Amherstburg, Dundas, Hawkesbury, Renfrew; 1919, Rockland; 1920, Brampton; 1921, Cutler, Kingsville, Richmond Hill; 1922, Kincardine, Peterborough, Tecumseh; 1923, Dunnville, North York, Port Credit, Whitby; 1924, Chippawa, Thornbury; ?, Cardinal, Smooth Rock Falls, Sturgeon Falls.

Chlorination equipment: 1913, Niagara Falls, Port Arthur, Sault Ste. Marie, St. Thomas, Walkerville, Whitby; 1914, Brantford, Haileybury, Oakville, Pembroke, Port Colborne, Port Hope, St. Catharines; 1915, Guelph, New Toronto, Niagara-on-the-Lake, Perth, Renfrew, Sudbury, Thorold, Wallaceburg; 1916, Belleville, Copper Cliff, Goderich, Grimsby, Ingersoll, Oshawa, Parry Sound, Peterborough, Rainy River, Smith's Falls, Strathroy, Weston; 1917, Cobourg, Dundas, Iroquois Falls, Lindsay, Rockland, Welland; 1918, Dunnville, Hawkesbury, Smooth Rock Falls, Tecumseh; 1919, Cutler, Depot Harbor, Espanola; 1920, Brampton, Cornwall, Courtright, Kapuskasing, Merritton, Napanee, Prescott; 1921, Essex, Hanover, Timmins; 1922, Burlington, Capreol, Crystal Beach; 1923, Alliston, Cobalt, Cochrane, Deseronto, Fort Erie, Hornepayne, Huntsville, Meaford, Port Credit, Stamford Township, Sturgeon Falls, Thessalon; 1924, Bridgeburg, Cardinal, Chapleau, Chippawa, Kirkland Lake, Minaki, North Bay, North York, Sioux Lookout, Thornbury; ? Keewatin, Port Stanley, Scarboro Township.

The programme which has brought about this most creditable situation was developed in 1913 and 1914, after a survey of the Province in respect to the prevalence of typhoid fever, which in Ontario has generally been associated with polluted water supplies. This survey indicated to the Department the points which appeared to serve as foci for the distribution of infection. The first work of the department was to stop-gap these points by the immediate insistence upon the use of chlorine compounds. Following this measure, pressure was brought to bear to advance more adequate types of purification. The expenditures which are represented by the improvements shown in these installations are very considerable, and municipal compliance with the Department's suggestions in many instances, as might be anticipated, was not immediate. The situation to-day, however, is an extremely satisfactory one, and shows for Ontario a greater percentage of municipal water supplies treated by adequate methods than is present in any other similarly industrialized area on this continent. The bearing that this work has had upon the typhoid rate of the Province cannot be over-

estimated. Table No. 1 shows how the typhoid rate for towns and cities has gradually diminished from 1910. There is no periodicity in the rate. That is to say, the decline has been consistent and without any upward trends. The rate for 1924, **namely 2.5,** would appear to be the lowest in the history of the Province, and considerably lower than that of the registration area of the United States.

The work of the Department, which was first confined purely to improving the water supplies throughout the Province, was later directed towards extending municipal sanitation. A situation was found to exist in many municipalities, where the programmes of sewer extensions and extensions to water mains were being held up for false reasons of economy and because there appeared to be some doubt in the minds of the local authorities as to whether works for the reception of sewage would be allowed by the Provincial Board, when not accompanied by sewage treatment schemes. It was early perceived by the Division that the paramount need of the moment was for sewerage facilities for the homes, in order that the property might be drained and that sanitary conveniences could be installed. This work has been encouraged by the Department, and the annual municipal expenditures on this item have leaped yearly, from $265,623, in 1916, to $321,808; to $258,727; to $353,305; to $2,821,244; to $1,400,173; to $1,410,227; to $2,735,018, to $5,141,034 in 1924, in towns, villages and townships alone. In the cities, the expansion has been more in proportion with their increase of population. From 1916, the yearly figures have been $996,648, $498,670, $336,397, $2,190,934, $1,408,980, $1,904,460, $3,938,435, $3,240,280, and $2,479,927 in 1924. The annual estimated expenditures on sewerage exclusive of disposal works from 1916, have been $1,262,271; $821,479; $595,124; $2,544,240; $4,230,225; $3,304,633; $5,348,622; $5,975,299; and $7,620,961, in 1924.

The extension of water mains is equally significant. In 1916, the annual expenditure in cities was approximately $183,689. At that time the interpretation of water works legislation seemed to suggest that extensions to the water works system should not be made without a vote of the people, unless they showed a ten per cent. revenue. The Department attempted to cope with this unfortunate embarrassment and succeeded to the extent that the interests of the public health are now considered paramount, even if the service has to be at cost.

From 1916 the water works expenditures in cities have increased annually as follows:

$183,689; $406,352; $314,400; $1,130,783; $1,207,720; $1,895,152; $1,859,477; $2,101,345; to $1,519,572 in 1924. In towns, villages and townships, the yearly amounts from 1916 have been, $477,425; $1,142,477; $665,615; $1,666,170; $3,236,385; $2,519,185; $3,082,548; $2,639,261, and $3,074,702 in 1924. The total estimated water main expenditures since 1916 have been $661,104; $1,548,799; $980,015; $2,796,953; $4,444,106; $4,414,337; $4,942,025; $4,740,556, and $4,594,274 in 1924, an increase in expenditure of almost four millions over 1916. Despite this increase in capital expenditure, which has been of the utmost benefit to public health, the municipal systems in almost every instance continue to show a surplus in operation.

Following this project the Department has for the past four years been endeavouring to place at the disposal of the local authorities sanitary maps, which show the location of all premises, within the municipality, which are not connected to either water works or sewerage, and also the location of all outdoor privies, septic tanks and private wells in use. These maps and reports are accompanied by an analysis of each individual well, together with a description

No.	Town	Date of Survey	Population	Premises	Water Connections	Wells, Springs	Sewer Connections	Privies	S. Tanks, Cesspools	Private Sewer Outfalls	Remarks
1	Longford	April 10	300	93	.....	15	.....	90	1	1	
2	Islington	" 4	.....	237	1 Lambton	S 181	13	195	77	1	1 chemical toilet, 13 prems. to private sanitary sewer.
3	Bowmanville	May 5	3,547	946	605	189	450	468	15	.....	
4	Port Hope	" 7	4,510	1,250	953	162	538	597	61	15	
5	Oshawa	" 12	15,545	3,702	3,319	139	2,499	1,086	96	1	
6	Markham	" 21	950	322	144	112	0	272	55	0	2 chemical toilets.
7	Uxbridge	" 29	1,446	473	38	251	0	419	51	2	T. water is fire supply only.
8	Stouffville	" 26	1,071	361	276	53	0	239	128	0	1 chemical toilet.
9	Dundas	June 4	5,000	1,216	962	148	558	589	89	.....	2 chemical toilets.
10	Burlington	" 7	2,488	915	788	47	552	151	37	3	1 chemical toilet.
11	Waterdown	" 13	836	249	.....	139	.....	213	42	.....	1 chemical toilet.
12	Beamsville	" 11	1,200	354	242	74	.....	248	97	.....	
13	Port Dalhousie	" 16	1,417	482	341	41	145	332	7	9	
14	Niagara-on-the-Lake	" 20	1,650	455	363	61	194	191	46	9	
15	Thorold	" 17	5,492	1,121	1,062	90	851	237	1	13	
16	Merritton	" 19	2,574	597	538	21	450	129	10	23	1 chemical toilet.
17	Chippawa	" 24	1,087	279	.....	105	.....	233	4	18	32 Norton water and sewer.
18	Bridgeburg	" 25	2,276	646	627	1	518	94	9	1	
19	Fort Erie	" 26	1,500	527	464	8	.....	335	184	.....	
20	Midland	July 7	7,000	1,679	1,617	18	844	724	66	10	
21	Penetanguishene	" 14	4,000	774	641	80	222	308	31	14	
22	Mattawa	Sept. 11	1,484	307	.....	*91	.....	257	41	.....	1 chem. toilet—C.P.R. Mattawa River supply 8, Mattawa Hotel Ottawa River supply, 4.
23	New Liskeard	" 12	2,500	624	496	37	266	337	4	4	1 chemical toilet.
24	Haileybury	" 15	2,484	672	509	29	326	306	3	.....	1 chemical toilet.
25	Cobalt	" 16	.....	933	903	1	815	92	6	2	1 chemical toilet.
26	Englehart	" 18	1,100	227	135	7	66	152	2	.....	
27	Matheson	" 18	346	105	93	.....	16	85	.....	.....	
28	Timmins	" 19	12,293	2,266	1,097	260	743	1,442	15	.....	2 chemical toilets.
29	Clinton	Oct. 8	2,000	655	599	17	0	521	121	0	3 chemical toilets.
30	Wingham	" 6	2,440	650	535	62	328	283	20	4	
31	Mitchell	" 9	1,700–1,800	565	284	195	0	383	195	4	3 chemical toilets.
32	Westmount	" 13	.....	141	0	60	0	133	7	0	1 chemical toilet.
33	Richmond Hill	" 16	1,235	380	113	176	0	276	101	0	3 chemical toilets.
34	Aurora	" 20	2,350	680	614	42	0	318	361	0	2 chemical toilets.
35	Newmarket	" 22	4,000	966	834	97	432	450	92	5	1 chemical toilet.
36	Brampton	" 28	4,850	1,313	1,188	186	997	270	37	4	4 chemical toilets.

*Six other samples besides.

TABLE NO. 1

TYPHOID FEVER DEATH RATES PER 100,000 OF POPULATION

Place	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910
United States of America	.....	6.8	7.5	9.0	7.8	9.2	12.5	13.4	13.3	12.4	15.4	17.9	16.5	21.0	23.5
Quebec Province	.....	13.5	13.5	16.2	22.0	16.5	17.0	29.1	24.2	21.4	19.9	19.0	24.3	.....	.....
Ontario Province	2.5	7.9	6.0	7.27	7.0	5.2	7.52	8.4	12.0	10.7	13.5	16.7	18.7	25.3	31.5
Ontario, cities only	.....	4.3	5.1	6.8	5.5	4.3	9.6	7.5	12.1	9.4	12.4	17.3	27.7	35.8	51.5
Towns, Ontario	.....	17.9	10.6	19.8	25.0	19.5	17.2	31.4	52.2	38.0	47.4	46.0	47.0	62.3	56.4
United States of America, cities only	.....	.....	4.9	6.1	5.9	6.4	9.6	10.9	11.2	11.6	14.2	16.5	16.2	20.1	23.7

of the type of protection, i.e., top and curbing. The information is invaluable to the local authorities and where an efficient health organization exists, advantage is taken of these maps to lay down programmes for the municipal betterment. The maps are also the greatest convenience in locating the breeding places of flies, and where the public co-operate with the local authorities, these maps will be the greatest convenience for fly abatement campaigns. In all, some 154 municipalities have been surveyed in this complete fashion, and it is hoped that the group now outstanding will be handled during 1925.

There were but three incineration plants in the Province prior to 1913 for the disposal of municipal refuse, namely: Toronto, (old plant), Cobalt and Ottawa. Since then, plants have been erected as follows:

1913, Fort William, London, Peterborough, Walkerville; 1914, Fort Frances, Sault Ste. Marie, Stratford; 1915, Kingston, Kitchener, Sudbury; 1917, Toronto, (Don plant); 1918, New Toronto, 1919, Iroquois Falls, Niagara Falls, Sarnia; 1920, Timmins; 1921, Smooth Rock Falls; 1922, Chatham. (Ford City uses the Walkerville incinerator. Mimico uses the New Toronto incinerator.)

The experimental station since its inception in 1910 has released a great deal of valuable information to the municipalities and to the engineering profession. There exists at this time the closest co-operation between the University of Toronto and the Division, some of the instruction in the course for sanitary engineering, in the public health course, being carried on at the experimental station.

At the present time the Department is undertaking to review the provincial situation with respect to the handling and distribution of milk for human consumption. It appears that the municipal milk supply for public health purposes should be put in the same category as the municipal water supply, and that the same scrutiny and the same vigilance should be exercised to insure its quality. A digest of the salient features of the situation is dealt with under a separate heading in this report.

The sanitation of motor camps has been under review during the past year. The situation in this regard is not particularly satisfactory, and it would appear that there is need for provincial regulations in this field. A survey was made during the year, a report of which is included under a separate heading, and the Division has under preparation a set of regulations for your consideration.

The public to-day are interested more than they have ever been in sanitary engineering, and there is an increasing demand on the office for assistance through talks, and requests for technical advice, and for municipal statistics. The question as to whether the time has not arrived for distributing the engineering personnel of the Division at strategic points throughout the Province, and leaving the engineers in the field to deal with the supervision of protective apparatus in connection with water supplies; the reporting upon nuisances now referred to the district medical officers; and all other matters pertinent to the work of the Department, in their respective areas. This is dealt with at greater length elsewhere in this report.

An effort has been made during the past year to tabulate the records of the Department in some more convenient way than the press of work has heretofore permitted. It will be possible in the future to furnish manufacturers, municipal engineers, and other inquirers with a great deal of useful information compiled from our records.

Included in this report is a list of the vitrified tile and concrete sewer pipe, listed by sizes, used in the Province during the years 1923 and 1924.

The Department has now under advisement the preparation of a water works hand book listing the salient features in connection with the water works systems of Ontario municipalities. These, we trust, will be available sometime in 1925.

Municipal water works systems have been established since 1909, as follows: 1910, Burlington, Cobalt, Fort Erie, Markdale, Rainy River, Weston; 1911, Blyth, Exeter, Tavistock, Thamesville; 1912, Bourget, Cochrane, Dresden, Harriston, Streetsville; 1913, Brighton, Copper Cliff, Fergus, Parkhill, Port Stanley, Stamford Township; 1914, Bowmanville, Elmvale, Englehart, New Toronto, Point Edward, Timmins, Tottenham, Wallaceburg; 1915, Carleton Place, Ford City, Hespeler, Lambeth, Leaside, Matheson, Mimico, Sandwich East Township; 1916, Grantham Township, 1917, Port Dover; 1918, Crowland Township; 1919, Acton, Eastview, Milverton; 1920, Courtright, Port Dalhousie, Scarborough Township; 1921, Anderdon Township, Riverside; 1922, Nelson Township, North Grimsby Township, Plantagenet, Port Credit, Richmond Hill, Ridgetown, Woodbridge; 1923, Dryden, Fonthill, St. Clair Beach, Teck Township, Tisdale Township; 1924, Thornbury, West Ferris Township, Espanola, Etobicoke Township, Forest Hill, Hornepayne, Iroquois Falls, Kapuskasing, Rockland, Smooth Rock Falls, Sioux Lookout, Tecumseh, York Township, Chippawa, Crystal Beach, East York Township, Forest, North York Township, Sandwich West Township.

The applications in connection with water works and sewer extensions, recommended for approval, show the total expenditure on these two items for the year to be $12,830,606.34.

Sixteen liquid chlorination equipments were installed during the year, two of which were new installations, three replacing liquid equipments, one replacing bleach equipment, and one as an additional unit. Twelve of these installations were of the pedestal type vacuum chlorinator.

SEWERS APPROVED, PROVINCIAL DEPARTMENT OF HEALTH, 1924

Vitrified Tile Pipe

Size (inches)	Length (feet)
4	264
6	46,479
8	85,743
9	130,105
10	59,055
12	164,662
15	64,381
18	35,270
20	1,623
21	30,695
22	150
24	22,261
27	7,201
30	7,322
33	3,507
36	3,738
48	11,873
60	1,416
Total	675,745

Cast Iron Pipe

Size (inches)	Length (feet)
15	600
18	435
Total	1,035

Brick Pipe

Size (inches)	Length (feet)
30	2,404
33	563
36	3,920
42	2,504
45	1,413
48	6,251
54	1,846
60	4,205
66	4,262
72	6,355
78	970
84	3,488
90	1,581
96	682
Total	40,444

Concrete Pipe

Size (inches)	Length (feet)
8	6,215
9	15,993
10	2,656
12	30,410
15	14,157
18	14,234
21	6,147
24	2,122
27	5,673
30	3,595
33	1,428
36	6,851
42	753
45	220
48	5,412
54	6,854
60	6,427
72	1,155
78	3,844
96	344
Total	134,490

Segmented Block Pipe

Size (inches)	Length (feet)
33	35

Brick Sewers (*Rectangular*)

Size (inches)	Length (feet)
20x30	838
26x36	1,634
28x42	182
30x45	1,027
36x54	511
38x57	659
44x66	297
Total	5,148

Concrete Sewers (*Rectangular*)

Size (inches)	Length (feet)
30x36	323
60x60	234
72x72	160
60x96	187
Total	904

Grand Total (all sizes and materials) ..... 857,801 feet.

SEWERS APPROVED—PROVINCIAL DEPARTMENT OF HEALTH, 1923

Vitrified Tile Pipe

Size (inches)	Length (feet)
4	4,190
6	31,934
8	116,682
9	102,609
10	99,745
12	146,888
15	51,755
18	34,236
20	3,860
21	16,236
24	21,423
27	6,043
30	3,765
33	40
36	3,490
42	930
Total	643,826

Cast Iron Pipe

Size (inches)	Length (feet)
6	408

Segmented Block Pipe

Size (inches)	Length (feet)
33	354

Concrete Sewers (*Rectangular*)

Size (inches)	Length (feet)
30 x 60	500
30 x 54	400
72 x 76	630
75 x 78	3,260
78 x 120	1,560
81 x 90	93
90 x 90	375
Total	6,818

Concrete Pipe

Size (inches)	Length (feet)
6	35
8	695
9	18,237
10	15,228
12	34,957
15	12,621
18	3,247
20	241
21	4,219
24	8,210
27	4,100
30	13,584
33	2,375
36	2,457
39	1,103
42	9,326
48	1,837
54	2,630
60	1,185
72	4,850
Total	141,137

Brick Pipe

Size (inches)	Length (feet)
45	5,397
48	3,018
54	1,338
57	354
Total	10,107

Grand Total (all sizes and materials) ..... 802,650 feet.

Division of Sanitary Engineering

BULLETIN No. 12

Proposed Distribution of Engineering Personnel into Health Districts

F. A. DALLYN, C.E. (Tor.), M.E.I.C.
Provincial Sanitary Engineer.

Activities of the Experimental Station for 1924

A. V. DELAPORTE, B.A.Sc., Chem. E. (Tor.), M.E.I.C.

Defects in Existing Ontario Milk Legislation

A. E. BERRY, M.A.Sc., C.E. (Tor.), A.M.E.I.C.

Report on Field Work re Fire Underwriters' Cross Connections

G. A. H. BURN, B.A.Sc.

Motor Tourist Camps

A. V. DELAPORTE, B.A.Sc., Chem. E. (Tor.), M.E.I.C.

PROPOSED DISTRIBUTION OF ENGINEERING PERSONNEL INTO HEALTH DISTRICTS

By F. A. Dallyn, C.E. (Tor.), M.E.I.C., Provincial Sanitary Inspector.

During the past five years the work of the Division of Sanitary Engineering has assumed very extensive proportions. This work has been steadily increasing each year as a result of the construction of more and more works for the protection and purification of water supplies, and for the disposal of sewage, garbage and nightsoil. The public are thoroughly awakened to the need of this work, and are making an increasing demand on the division for advice and assistance in the obtaining of better and more sanitary living conditions.

Since the establishment of the office of Provincial Sanitary Engineer in 1913, the work has all been done direct from a central office, but the field is now so broad that the division of the older section of the Province at least into districts, and the establishment of a resident engineer in each district would seem advisable. The assumption of this policy would not only enable the regular work of the Department to be carried on more efficiently, but, also, by reason of the greater personal contact of an engineer with the various municipal heads would increase the usefulness of the service during the construction of many municipal improvements, and tend to further foster and enlarge the goodwill at present existing between the Department and the municipal councils throughout the Province.

The field covered by a district sanitary engineer may be discussed under the following heads:—

(1) Supervision and inspection of protective and purification apparatus for water supplies, and sewage disposal.
(2) Inspection, control and removal of nuisances.
(3) General oversight of the municipal programme with respect to sanitation.
(4) Supervision of milk supplies from a public health standpoint.
(5) Enforcement of Special Regulations of the Provincial Department of Health.

(1) *Supervision and Inspection, etc.*

The extent to which the investment of municipalities in water works and sewerage systems has been increased may best be judged by a comparison of the cost of approved extensions for the years 1916, 1919 and 1923. In 1916, approvals to the value of $1,324,132.90 for sewers and $685,937.52 for water works were granted. In 1919, the figures were $2,786,481.07 and $2,722,217.46 respectively, while in 1923 they were $6,169,221.57 and $5,123,479.93. We have in the Province to-day thirty-eight filtration plants. In addition, nine plants are projected or in the course of construction. In 1923 there were a total of seventy-four municipal supplies which were being protected by means of liquid chlorine apparatus. In addition, thirty-seven supplies, other than municipal, were being safeguarded in like manner. Besides these, there are fourteen supplies being treated with chloride of lime equipment. This makes a total of 125 chlorination plants in the Province. In 1923 alone there were thirty-five additional installations of liquid chlorine equipment.

In 1923 an inspection service was instituted to supervise the municipal chlorination plants, and very gratifying results have been achieved as a result of this service. With a district engineer more frequent inspections would be possible and the value of the service enhanced. In addition, with a district engineer readily available, better supervision of filtration plants would also be possible.

Many of these plants are comparatively small units, and the plant operators are not well informed on filter-plant operation. The engineer, acting as an intimate link between the plant operator and the Department, can smooth out many of their difficulties and thus secure a more satisfactory effluent from the filtration plant.

A similar service would be provided in connection with the operation of sewage disposal works.

The outbreaks of typhoid fever could to a considerable degree be forestalled and the assistance of the Sanitary Engineering Division to the District Officers of Health will do much in handling more efficiently the occasional epidemic, and force them under control in a shorter period of time.

(2) *Inspection, Control and Removal of Nuisances.*

During the course of each year many complaints *re* nuisances arising from the discharge of creamery and cannery wastes, as well as other objectionable trade wastes, are received by the District Officers of Health. If the nuisance arising is serious or difficult of solution, the Engineering Division is now invariably requested to suggest and advise ways and means of control or removal. If the district had a sanitary engineer, the central office could proceed more conveniently to a solution of situations such as these, and the vestments of the interests affected be would better protected, and more rapid action could be secured in the abatement of these troubles.

(3) *General Oversight of the Municipal Programme re Sanitation.*

This field is a very broad one, and the value of the service is largely dependent upon the intimate contact which will be established between the Department and the municipal authorities through the medium of the engineer. During the past five years 154 sanitary surveys of the cities, towns and villages of the Province have been made. These surveys have placed in the hands of the engineer an enormous mass of valuable information which has been of great service to the Department, but which would be of much greater value if it were better distributed. It would be the duty of the district engineer to take these sanitary survey reports and maps and bring them before the various municipal bodies affected, explaining the nature of the findings and giving helpful advice as to how the local problems, of which each municipality has one or more, may be best attacked and solved to the advantage of the municipality at a minimum cost.

In one town, for example, the question of some system of nightsoil and garbage collection may be to the fore. The local Board of Health and council will require information in regard to the different methods of collection and disposal in vogue. This information can be supplied by the district engineer, who will also be of assistance in revising the technical clauses of a suitable by-law to cover the local situation. At another municipality the extension of the sewerage facilities and of the water works system may be the pressing need of the moment.

The district engineer may be of valuable assistance in showing the necessity for making these extensions, and also for enforcing a local by-law requiring the connection with these services on all streets where they are available. Many muncipalities now have no by-law of this nature, and some of those which have do not enforce it.

There is also a crying need at present for more educational work in regard to the introduction in every municipality of sane plumbing regulations. This is necessary not only as a means of conserving the water supply, as a great deal of

the wastage in most instances is due to defective and leaking fixtures, the result of lax plumbing regulations, but also in order that a sane, minimum standard code may be general throughout the Province.

In some municipalities the question of fly control is an important one. In regard to this subject, considerable research work has been performed by the Engineering Division, the report of which appears in the "Annual Report of the Provincial Board of Health for 1921." The district engineer would be in a position to organize local interest in this question which should lead to the elimination of this pest to the general public.

During the past few years the enormous increase in motor traffic has led to the establishment of many tourist camps throughout the Province. Here again is work for the district engineer in the periodic inspection of the water supplies and sanitary facilities at such camps.

As a special service much good work can be done along the line of protection of private well supplies. This service could be particularly applicable to urban and surburban areas as the Department of Agriculture is now looking after the country districts. One of the features of the sanitary surveys which have been conducted during the past few years has been the bacterial examination of all private domestic wells. The results of these analyses have shown that only a small percentage of wells in urban districts are free from pollution, and that much of the pollution is due to ignorance on the part of the general public in regard to the proper construction and protection of such supplies.

These are only some of the features of the engineer's field in public health education, and while progress may seem slow at first, the results will become more and more apparent as the engineer becomes better acquainted with his district. The value of a more intimate connection between the Board and the municipal authorities is strikingly exemplified in the results achieved from the chlorination inspection service instituted in 1923. This service, in addition to providing a regular inspection of chlorination equipment, included the supplying of all plant operators with a solution of ortho-tolidin and colour standards with which they might make periodic tests themselves in order to insure that the local supply is safeguarded at all times. In spite of the simplicity of the test, many operators with the layman's innate dislike for chemicals, were either dubious of the test itself or of their ability to perform it. Gradually, as a result of regular inspections, the simplicity and efficiency of the test have appealed to them so that now most of the operators are making regular tests, daily or oftener, and some even keep a daily log which is at the disposal of the inspector making his visit. *This increased interest in maintaining a safe water supply which has been stimulated as a result of the co-operation secured through the medium of the Board's inspectors, has not only secured a marked improvement in the average quality of the water supplied from these water works plants, but, in the opinion of the Department, is responsible for the unusually favourable typhoid rate in 1924, which for Ontario was 2.5.*

Similar improvement along other lines would follow the establishment of district engineers. Many projects come up before local councils which are dropped or held in abeyance for long periods. Helpful advice would often stimulate further public participation in many worthy projects. Though there might at first be the same diffidence on the part of municipal bodies in regard to consulting the Board's district representative, this attitude would soon disappear when they realized that these men were placed for their convenience.

(4) *Milk.*

The most casual survey of the milk problem indicates a definite field for the

Department of Public Health as apart from the ground covered by the Department of Agriculture. Considerable research work has been conducted in the past two years by the Sanitary Engineering Division. One report appears in the "Annual Report of the Board for 1923." These experiments have been carried on with a view to discovering the part played by various factors entering into the production and sale of milk, and have indicated the need for some amendments to be made in the "Milk Act," which will define by way of provincial regulations the requirements *re* cleansing of bottles and other utensils and the packaging of milk sold for public use.

The district engineer would be in a position to assume a certain amount of supervision over the local milk supplies of his district, to assist in enforcing milk by-laws adapted to the local needs, and to assist local inspectors by instruction until such time as these inspectors become thoroughly conversant with the subject and know where to look for dangerous practices and how to overcome them.

(5) *Enforcement of Special Regulations.*

Under this section comes regulations respecting connections between auxiliary water supplies including fire protection systems and municipal supplies, regulations governing the construction and management of swimming pools, and regulations governing the bottling, etc., of beverages.

In connection with the first regulations, a survey of the Province conducted by the Division in 1924 revealed the fact that there were 120 industrial plants which had emergency fire pumping equipment connected with municipal systems. Many of these have not yet installed the special type of check-valve required, and though most will probably have complied in this respect by the end of 1925, regular inspections of these installations will still be necessary to ensure their being kept in proper working order.

In the course of this survey it was also discovered that many industrial corporations had industrial supplies of doubtful quality to which they were maintaining emergency connections with municipal supplies. The Provincial Board of Health has practically no record of these connections and many more would probably be unearthed by the district engineers in the course of their inspections.

ACTIVITIES OF THE EXPERIMENTAL STATION FOR 1924

A. V. DeLaPorte, B.A. Sc., Chem. E. (Tor.), M.E.I.C.

During the past few years, field work has been making ever-increasing demands upon the staff of the experimental station. The activities during the summer especially are principally of this nature. From the beginning of May, 1924, to the end of October, a field party of four men was maintained on the road almost continuously making sanitary surveys, inspecting motor camps, and carrying on the regular inspection of chlorination plants in the Province. Sanitary surveys of thirty-six municipalities were made, and 127 motor camps inspected.

The sanitary surveys involve the sampling of all wells for domestic purposes, and these samples are all examined at the experimental station. Consequently, when a field party is out, the remainder of the staff is kept busy at routine laboratory work. During 1924, 7,000 samples were given bacterial examination, and a complete chemical analysis was made of fifty-five water and sewage samples.

From the first of May until the end of October, very little opportunity is offered for the carrying on of special research work, and this must necessarily be confined largely to the first four months of the year and the last two. During this period, also, a considerable volume of work is accomplished in the draughting of sanitary survey maps and the completion of survey reports, and lists of the results of the examination of well samples collected. The regular inspection of chlorination plants is also continued over this period.

In spite of the rather limited time at the disposal of the staff for work of a purely research character, several experiments and investigations were conducted. These included the investigation of the operation of a pressure mechanical filter at Burks Falls. Special research in regard to the efficiency of different methods of operation of gravity mechanical filters, further experimental work on the effect of aeration in the removal of tastes in the Lindsay water supply, and investigation of the use of indicators and inhibitors in standard media; special research re the putrescibility of sewage, and analyses for iodine of the various brands of common salt on the market as well as the mineral springs of the Province.

The problem at Burks Falls involved two factors: (1) the adoption of a satisfactory chemical dosage, and (2) the choosing of a suitable method for the application of the coagulant solution. This water supply is secured from Reazin Lake, and is a soft highly-coloured water. Waters of this nature require an excessive dosage of alum to appreciably affect the colour. Being soft, large doses of alum reduce the Ph value to a point within the acid range, or if already acid, increase the acidity. To prevent red water troubles, other chemicals must be added as correctives. This complicates the chemical dosage somewhat, and experiments were conducted to try to remedy this.

Laboratory tests conducted with sodium aluminate were fairly successful in highly-acid waters. It tended to neutralize the acidity, and gave an excellent floc. Owing to the high aluminum content as compared with ordinary alum, smaller dosages could be used, but even with minimum doses, there are few waters sufficiently acid to completely precipitate the sodium aluminate required for filter purposes.

It was found, however, that when solutions of alum and soda ash of certain strength were added together, the first precipitate of aluminum hydrate was re-

dissolved. When this resulting solution is diluted with water, the sodium alumina compound breaks up almost instantaneously, giving an aluminum hydrate floc. This coagulant has been tested in the laboratory on a number of different types of water and in every instance has given excellent results. It would appear to lend itself particularly to the treatment of waters with a low alkalinity and a Ph value approaching or within the acid range as there is sufficient sodium carbonate in the mixture to neutralize the acidity of the alum, thus overcoming to a large extent the necessity for corrective treatment.

It is proposed to test the efficiency of this innovation in chemical treatment on the Burks Falls supply, early in 1925. Should the results achieved from a practical application confirm laboratory findings, the problems of other water works plants treating a similar type of water will be simplified.

The other problem at Burks Falls arose from the fact that the filter is inserted on the gravity main feeding the town. The rate of flow through the filter being controlled by the consumption in the village varied greatly, and it was a difficult matter to secure a proper dosage of coagulant at all times. This maintenance of a correct dosage is an important factor in treating a water of this nature, but the difficulty promises to be overcome by the use of a chlorometer for applying the coagulant solution.

An investigation of the efficiency of a gravity mechanical filter using different chemicals, and particularly of the part pre-chlorination is supposed to play in increasing filter runs and decreasing coagulent requirements is being conducted at present. Some difficulty has been experienced in arriving at a basis for calculation of filter efficiency when pre-chlorination is practised, as even minimum doses of chlorine give a high bacterial removal. Results already achieved indicate that some very interesting information may be secured upon this rather controversial subject.

The experiment at Lindsay was a continuation of aeration experiments similar to those reported on in 1923 at Richmond Hill, Essex and Forest. Here the object was to eliminate the weedy tastes developing in the municipal supply at certain periods of the year. Unfortunately, the air compressor at the disposal of the Board for this work was too small to be of any value other than to indicate that the problem might be solved if adequate aeration equipment were installed.

In the bacteriological field, special research was commenced towards the end of the year in the use of special dyes and indicators in standard media for the B. coli fermentation test. The object of the experiment was to select some dye or indicator, the use of which would simplify or shorten the more or less complicated and lengthy tests at present in use. Comparisons are being made of the efficiencies of lactose broth, neutral red, crystal violet, bile, brilliant green, Andradi's indicator, and potassium tellurite. A complete report of the findings will be brought forward at a later date on the completion of the work.

Another experiment which is at present under way, deals with the biochemical oxygen demand and putrescibility of sewage. This problem is being studied with a view to determining the effect of temperature, time and dilution.

During the first of the year, chemical analyses for iodine content of all the different brands of table salt on the Ontario market were made. In no case was any trace of iodine discovered. Similar analyses of the waters from the more important mineral springs in the Province were made. Iodine was present in two or three of the springs in the Ottawa Valley, but in none of those in Western Ontario.

The experiments conducted in 1923 in the sanitation of swimming pools are bearing fruit. Considerable interest has been stimulated in this important

matter and steps have been taken at a number of pools to maintain them in a better condition. This year the feasibility of protecting bathing areas by chlorination was investigated.

Sunnyside beach at Toronto was chlorinated on two successive days. The chlorine solution was distributed from a motor launch which cruised up and down the area. In all, over 1,000 lbs. of bleaching powder were discharged into the area in a little over four hours. The experiment was not very successful, because it was found that the water containing the chlorine solution was carried by the along-shore currents away from the bathing area before the solution became diffused. Consequently the chlorine was being more or less wasted. It was obvious that to properly protect such a bathing area, an enormous amount of chlorine would be required, and unless some means were taken to stop the along-shore drift, the cost would be prohibitive.

It has been observed in water pumping stations that where more than one pump takes suction from the same suction line or pump well to which a chlorine solution is being applied, the residual chlorine in the different discharges varies as a result of inadequate mixing or lack of diffusion of the chlorine solution. This has given rise to complaints of tastes in certain sections of the distribution system, with a possibility of non-sterile water in other parts. The problem is at present under consideration and its solution may involve changes in the method of chlorine application in certain municipalities in the Province.

The recommendations of the Provincial Board of Health issued in 1923, that the Milton Worsted Knitting Mills treat their trade wastes with chloride of lime, was adopted, and was entirely successsful. It was found that the wastes were bleached with less chloride of lime than was indicated by laboratory experiments, and since this treatment was adopted, there have been no further complaints as to the discolouration of the stream.

It should be noted in closing that, as most of the research work carried on must be done during the winter months, work of this nature is seriously hampered because the section of the building housing the mechanical equipment and experimental units is not weather-proof. This necessitates the draining of all water lines at the close of each day's work to prevent freezing. It would appear that the important nature of the research carried on would warrant an investigation of the costs of rehabilitation of the building, so that work could be carried on conveniently and continuously.

DEFECTS IN EXISTING ONTARIO MILK LEGISLATION

By A. E. Berry, M.A. Sc., C.E. (Toronto)

The Ontario Milk Commission has described the legislative enactments governing the "production, care and distribution of milk for human consumption and manufacturing purposes," as follows:—

"Like all other Canadian laws, these come under three heads—federal, provincial, and municipal. In matters of agriculture, under which dairying naturally comes, the Dominion and Provincial authorities have concurrent powers, the federal being supreme. The Provinces, therefore, may make practically what laws they choose within reason. The municipalities which receive their powers from the provincial legislatures, may make only such by-laws as are within the scope thereby delegated."

Federal Legislation

"The production, care and distribution of milk being largely a provincial and municipal matter, it is not the subject of any extensive legislation. The health of animals branch of the Dominion Department of Agriculture encourages good breeding by means of the 'record of performances' and other agencies, combats contagious diseases, administers the quarantine regulations, and has charge of the enforcement of the tuberculin test on animals for import or export."

Provincial Legislation

Provincial legislation may conveniently be separated into two branches, one dealing with milk for manufacturing purposes, and the other with milk for human consumption. The former includes:

(*a*) The "Milk, Cheese and Butter Act," passed 1908, and amended 1909.
(*b*) The "Dairy Products Act," 1909.
(*c*) The "Dairy Standards Act," passed 1916, amended 1921.
(*d*) The "Cream and Milk Purchase Act," passed 1920, and repealing a similarly named Act of 1919.

The first of these Acts provided for the appointment of dairy inspectors, upon recommendation of the Minister of Agriculture, and defined their powers. It also provided for keeping the premises of suppliers, creameries and cheese factories in a clean and sanitary condition.

The "Dairy Products Act" required the registration of all creameries, milk condenseries, milk powder factories, collection depots, etc. Inspection was to be made by inspectors appointed under the former Act.

The "Dairy Standards Act" set forth the basis of payment for all milk and cream received at a factory; the pasteurization of all whey to be used for feeding purposes; the grading of cream for butter-making, and the appointment of inspectors by the Minister of Agriculture to carry out the provisions of the Act.

The "Cream and Milk Purchase Act" provided for the purchase of milk and cream on the basis of the butter-fat content, and defined the powers and duties of the inspectors.

None of the above Acts deal with milk which is sold for human consumption.

Milk for Human Consumption

The early provincial laws dealt with the right of municipal councils to appoint inspectors, and to license milk vendors. The local board of health was also enabled under schedule "B" of the Public Health Act, to inspect in their own

municipality, all cows, stables, and places in which milk was either kept or sold, including cheese factories and creameries. Provision was also made against adulteration or alteration of the contents of the milk.

Such Acts were in operation in 1909 when the Ontario Milk Commission was empowered by the Ontario Government to investigate the methods whereby clean, wholesome, and sanitary milk was being successfully supplied to consumers in this or any other country, and to make a report. Their report followed an extensive survey of conditions throughout a number of the larger municipalities of the Province. The observations of the commission, substantiated by the opinions of men with a knowledge of the situation, led them to enunciate the following deficiencies in the legislation at the time.

(1) It did not permit the inspection of barns and producers' equipment, located outside the municipality to which the milk was delivered.
(2) No provincial minimum standards for butter-fat and "total solids content" of milk were in force.
(3) A general definition of adulteration was needed.
(4) Nothing prohibited the use of cans, bottles, and other utensils for purposes other than the storage of milk.
(5) No legal definition existed for certified milk and pasteurized milk.

In 1911 the Ontario Milk Act was passed, and all these objections were overcome. In addition, the municipalities were given more extensive powers, and were enabled to pass by-laws upon approval of the Minister of Agriculture, regulating milk produced for sale, offered for sale or sold within the municipality in respect to:

(*a*) Care of cows.
(b) Cleanliness of stables.
(*c*) Water supplied the cows.
(*d*) Care and cleansing of utensils.
(*e*) Handling of milk.
(*f*) Taking of samples.
(*g*) Granting of licenses to vendors.
(*h*) Fixing the standard for butter fat and total solids.
(*i*) Appointment of inspectors.

Department of Agriculture in the Milk Industry

The initiative for the municipal regulations in respect to the milk industry now rests with the Department of Agriculture, and all municipal by-laws under "the Milk Act" must be approved by the Minister of that Department.

Progress under the Milk Act

Probably one of the chief benefits from "the Milk Act" was the authority given to municipalities to inspect barns and equipment, irrespective of where they were located. This new power on the other hand, led to the placing of a great deal of emphasis upon the condition of the stables, and comparatively little attention to other matters, such as the cleanliness of the pails and various milk utensils. Yet it has been shown conclusively that the condition of the stable is the least important factor in the production of milk of low bacterial content and high keeping qualities. Similarly the utensils have been shown to be the most important factor. Milk handled in well-cleaned and sterilized utensils keeps sweet about sixty per cent. longer at room temperature, than when the pails are washed in the process in use at most dairies. In comparison with this, the effect of the stable is almost negligible.

"The Milk Act" has now been in force for almost fourteen years. What progress has been made in the handling of milk for human consumption in that period? Apart from the inspection of dairies, adulteration, the use of certified and pasteurized terms, the municipalities do not appear to have exercised to advantage those powers conferred by the Legislature. It is only in the larger cities, where an efficient and well-trained inspection staff is operating, that advantage appears to have been taken. In a recent questionnaire prepared by the sanitary engineering division, and returned by the clerks of the municipalities, it was found that all the larger municipalities are operating under by-laws, but only in a few of the larger ones has proper attention been given to matters other than the stables. The smaller municipalities give little, if any, attention to the milk situation.

The "Ontario Milk Act" is an Act whereby permission is granted to municipalities to pass certain by-laws in respect to milk. The fault of the Act lies not so much with the powers granted, but with those municipalities who have not become sufficiently interested to pass and enforce such laws. There is consequently an apparent need for some province-wide sanitary by-law, which, similar to schedule "B" of the "Public Health Act," would be in force in all municipalities until amended by them. Such legislation should be made to deal particularly with the cleaning of milk utensils. Inspection could be carried out by local inspectors in conjunction with officers of the Provincial Department of Health. This co-operation would serve as a training for the local inspectors, and would tend to remove those conditions naturally resulting from the use of untrained inspectors.

REPORT ON FIELD WORK RE FIRE UNDERWRITERS' CROSS-CONNECTIONS

By G. A. H. Burn, B.A.Sc.

A survey of the Province was made in 1924 to ascertain to what extent the regulations passed in 1921, governing the connection of auxiliary railway, factory, or other supplies, including fire protection systems, with a municipal water works system used for domestic purposes, had been complied with.

Owing to certain misconceptions which appear to have arisen amongst many manufacturers affected by these regulations in their interpretation of the law, it is thought best to briefly summarize the main features.

In the first place, all connections between auxiliary supplies of any nature and municipal supplies are forbidden, except those connections provided in the regulations for fire protection only.

Permissible connections for fire protection are dealt with under the following headings, viz.:

(*a*) Where the auxiliary supply consists of an overhead tank.

(*b*) Where the auxiliary supply is pumped from a storage reservoir.

(*c*) Where the auxiliary supply is pumped from a separate source.

For the first type of connection, plants affected were required to install dual check valves, fitted up with necessary devices on their connections with the municipal system. Two check valves of the regular fire underwriters type are permitted on these connections.

For the second class, the installation of dual check valves of special F. M. type was required within a period of two years from the passing of the regulations. It is also required that the reservoirs be protected against the entrance of drainage water or other deleterious matter.

On all connections between auxiliary supplies from a separate source and municipal systems, the installation of dual check valves of special F. M. type was required within six months from the passing of the regulations. Furthermore, if on examination by the Provincial Board any source of private supply could not be approved as of satisfactory quality, or satisfactorily protected for domestic consumption, the corporation so affected faced two alternatives within two years from the passing of the regulations.

(1) Discarding of the unsatisfactory source of supply, and installing an overhead tank or reservoir as an auxiliary source.

(2) Disconnecting from the municipal system, and relying entirely upon the private supply for fire protection.

In the course of the recent survey, particular attention was paid to conditions at plants which had fire pumping equipment of their own. The majority of plants visited were those whose names were secured from lists supplied to the Board by the Associated Factory Mutual Fire Insurance companies, and the Canadian Fire Underwriters Association.

The City of Toronto took over the enforcement of the regulations at plants coming under their jurisdiction, and none of these plants were visited. Any data given, therefore, will not include Toronto.

Seven plants were visited which have combined fire and industrial supplies with fourteen major connections with municipal systems. Two of these have installed double check valves of special F. M. type, and a third has installed double checks, but not the special type required. One plant has a single check

but also a by-pass around the check valve, controlled by a gate valve. At another corporation, there is just a gate separating the two supplies. The sixth plant has separated the two supplies by providing two gates with a drain between on each connection. At the seventh plant, disconnection of the two supplies has been secured. All these separate supplies are subject to serious sewage pollution, and at two other plants disconnection of the two supplies has been asked for.

Sixty-four industrial establishments were inspected which pump auxiliary fire supplies directly from a separate source. Thirty of these with thirty-eight connections have installed double checks of special F. M. type. In one instance, where there are two connections with the municipal system, only one of the checks on each connection is of special F. M. type, the original check on the connection having been left for the second. Of the remaining thirty-four plants with thirty-eight connections, five plants with seven connections have double check valves installed, but not the special F. M. type required. Twenty-seven, with twenty-nine connections, have a single check valve only, and two plants with two connections have a gate valve only separating the two supplies. At three plants, there are by passes around the check valve, permitting the plants to pump direct into the municipal mains. In one instance, the municipal supply is not used for domestic purposes. In almost every instance, the separate supply is taken from a source which cannot be approved as provided under section 9 of the regulations.

Eighteen plants with twenty-seven connections were visited which have reservoirs filled wholly or partially from a separate source, or augmented with industrial returns, rain water, etc. Eleven of these with nineteen connections have installed dual checks of special F. M. type. At one plant, there are two checks in, but they are not of the special type. The remaining plants have single checks only on their connections.

Thirty-one plants with forty-six or forty-eight connections were inspected which have reservoirs filled from the town supply only, nineteen of these with thirty or thirty-two connections have installed double checks of special F.M. type. One company has one special check, and one regular underwriters check on its connection. Of the remaining twelve plants, two have two checks installed on three connections, but these are not the special type. The remainder have single checks only on their connections.

To sum up the findings, of 120 plants interested, sixty-two have installed the special F. M. type of check valves; nine have double check valves, but not the special type; forty-four have single check valves on their connections; four have a gate valve only separating the two supplies; and at one plant disconnection of the two supplies has been secured.

As previously stated where the auxiliary supply is taken from a separate source, the continuance of inter-connection with a municipal supply is dependent upon the ability of the Provincial Board of Health to grant approval of the separate source, under section 9 of the Act. In the course of the survey, the writer found that this feature of the regulations had been either overlooked or misunderstood by practically all corporations affected. Almost all appeared to be under the impression that once they had installed double check valves, they had complied with the Board's requirements.

There are eighty-two corporations affected by this section of the regulations. Seven have combined fire and industrial supplies from a separate source; sixty-four have fire supplies from a separate source, and eleven have reservoirs which are filled from a separate source. Thirty-nine companies have complied with regulations in so far as the installation of double check valves of special F. M.

TABLE 1 (*a*)

Corporations with combined industrial and fire systems from separate sources connected with a municipal supply.

No.	Name	Town	Separate Supply		No. of connections	Date of report	Remarks.
			Source	B. Coli per 100 cc.			
1	Canadian National Railways	Bridgeburg	Niagara River	3–1000 1–100	1	7/2/24	
2	Canadian Pacific Railway	Fort William	Kaministiquia River	seriously polluted	3	30/9/24	Double check in, not special F.M.
3	American Cyanamid Co.	Niagara Falls	Chippawa Canal	2–1000	4	6/2/24	
4	Marlatt & Armstrong Co.	Oakville	Lake Ontario	2–10	1	28/10/24	By-pass around check valve.
5	Robson Leather Co	Oshawa	Oshawa Creek	1–100 1–1000	1	11/3/24	Special F.M. checks installed.
6	Ford Motor Co. (new plant)	Ford	Detroit River	2–1000	1	7/12/23	Special F.M. checks installed, connection ordered removed.
7	Canadian Salt Co.	Windsor	Detroit River	seriously polluted	3	.....	Disconnection secured.

TABLE 1 (*b*)

Corporations with auxiliary fire supplies from separate sources. Special F.M. check valves installed.

No.	Name	Town	Separate Supply		No. of connections	Date of report	Remarks.
			Source	B. Coli per 100 cc.			
1	Abrasives, Ltd	Brantford	Power Canal, Grand River	2–1000	1	9/4/24	
2	Watson Manufacturing Co.	Brantford	Power Canal, Grand River	2–1000	1	9/4/24	
3	Canada Car & Foundry Co.	Fort William	Kaministiquia River	2–100	2	30/9/24	Drinking and service water taken off fire system.
4	Canada Iron Foundries	Fort William	Kaministiquia River	2–100	1	26/9/24	Emergency connections off fire system.

5	Canada Starch Co.	Fort William	Kaministiquia River	.....	1	25/9/24	Service water taken off fire system.
6	Fort William Paper Co.	Fort William	Mission River	1–100			
				1–1000	1	25/9/24	
7	C. Turnbull Co., of Galt	Galt	Grand River	1–20			
				1–100	1	25/3/24	
8	Newlands & Co.	Galt	Mill Creek	1–20			
				1–1000	1	25/3/24	
9	Victoria Wheel Co.	Galt	Grand River	2–1000	1	26/3/24	
10	Ontario Wheel Co.	Gananoque	Gananoque River	1–100	....		
				1–1000	1	6/6/24	
11	International Harvester Co.	Hamilton	Hamilton Bay	2–1000	1	25/7/24	
12	International Plow Works, Ltd.	Hamilton	Hamilton Bay	2–1000	1	25/7/24	
13	Stamped & Enamel Ware, Ltd.	Hespeler	Speed River	2–1000	1	6/5/24	
14	J. Richardson & Sons	Kingston	Kingston Harbour	2–1000	1	4/6/24	
15	Office Specialty Co.	Newmarket	Fairy Lake	1–20			
				2–1000	2	17/12/23	
16	Davis Leather Co.	Newmarket	Holland River	2–1000	1	18/12/23	
17	Penmans, Ltd., Mill No. 1	Paris	Nith River	2–1000	1	11/4/24	
18	Penmans, Ltd., Mill Nos. 2, 3 and 9	Paris	Grand River	1–1000	2	11/4/24	
19	Canadian Packing Co., Ltd.	Peterboro	Otonabee River	1–20			
				1–1000	2	20/5/24	Both checks are not special F.M.
20	Canadian Woollens, Ltd., Auburn Mill	Peterboro	Otonabee River	1–2			
				1–100	1	20/5/24	
21	Quaker Oats Co.	Peterboro	Otonabee River	2–20	2	19/5/24	
22	Provincial Paper Mills	Port Arthur	Thunder Bay	1–1000	1	24/9/24	
23	Maple Leaf Rubber Co.	Port Dalhousie	Welland Canal	2–1000	1	16/7/24	
24	Nicholson File Co.	Port Hope	Ganaraska River	2–4			
				1–10	1	27/12/23	
25	G. Pattinson & Co.	Preston	Speed River	1–20			
				1–100	1	5/5/24	
26	Kinleith Paper Mills, Ltd.	St. Catharines	Old Welland Canal	2–1000	2	15/7/24	
27	Frost & Wood Co.	Smith's Falls	Rideau River	2–1000	2	9/9/24	
28	Provincial Paper Mills	Thorold	Old Welland Canal	2–1000	1	17/7/24	
29	Ford Motor Co. plant No. 1	Ford	Detroit River	2–1000	1	7/12/23	
30	Canada Furniture Manufacturers, Ltd	Woodstock	Cedar Creek	2–100	2	7/5/24	

type is concerned, and one company has separated its supply from that of the municipality.

Of the auxiliary supplies pumped directly from a separate source, only one can be approved under section 9, while in seven instances where reservoirs are filled from a separate source, the separate source can be approved. In one case, the municipal supply is not used for domestic purposes, and no action can be required of the company until such time as the municipal supply is properly safe-guarded. The remaining seventy-two corporations, therefore, must make extensive changes in their fire protection systems in order to conform with the regulations as they now stand.

When the survey was first commenced, reports were sent to the companies inspected, and if their separate source of supply could not be approved, they were asked to consult their underwriters with a view to securing a solution of their problems which would satisfy the demands of the fire underwriters as well as conform with the Board's regulations.

This procedure led to objections from the Associated Factory Mutual Fire Insurance companies, and Mr. H. A. Burnham, their chief inspector, paid a visit to Toronto about the first of June, 1924. Mr. Burnham raised strong objection to cutting off these companies from using an auxiliary supply which could not be approved by the department. He suggested that section 9 of the regulations be changed to read:

"Subject to the approval of the Provincial Board of Health, in writing, a connection may be maintained between a private supply, and a municipal supply system, where the Board upon examination certifies that it is of the opinion that the source of supply is of satisfactory quality, or that the municipal supply is satisfactorily protected against contamination."

This proposed change would allow the Provincial Board to recognize dual check valves of special F. M. type as an adequate safeguard against contamination from a polluted fire supply. It would also make section 3 of the regulations inoperative, as it would obviously be unfair to make a few companies with reservoir auxiliaries keep their reservoirs free from pollution if connections with separate supplies which are polluted, are permitted.

While dual check valves of special F.M. type, when properly supervised, probably give the best protection to a municipal supply that has yet been devised, it is questionable whether the Board should grant its approval of a device which might possibly fail. In the course of the recent survey, seventy-one dual check installations at forty-six different plants were tested, and in sixteen instances one of the checks was leaking. The only other data on the efficiency of special F. M. check valves which has come to the writer's notice appeared in the December, 1923, issue of "The Nation's Health," vol. V. No. 12, page 899. In a short article, headed "Interconnection of Water Supplies," it is stated that in Hartford, Conn., since the installation of check valves in 1919, sixty-one instances of leakage through one valve, and six instances of simultaneous leaking of both valves have been recorded.

While there is no question as to the value from a fire protection standpoint of an auxiliary supply secured from an inexhaustible source, such as a river or lake, the necessity for such an auxiliary supply does not loom so great, if the primary supply, i.e., the municipal supply is conveyed through a well-gridded system, and is secured from an inexhaustible source, or has an adequate reserve for fire protection. One of the chief properties of an efficient fire protection system is that of applying water to a fire as soon as possible after it has started. This is provided for by the design of the sprinkler system, and if this is not at fault, any

fire which may start will rarely gain such headway as to require the services of auxiliary pumping equipment for many hours before it is brought under control. In ordinary practice, where pumping equipment is considered necessary as an auxiliary, and a supply from a separate source is not available, a reservoir containing from two to three hours' supply for the contemplated pump is provided.

It is the writer's opinion that where the municipal supply is reliable, the regulations could be enforced as they now stand without increasing the fire hazard at most of the plants affected by any appreciable degree. In some few instances, however, where the municipal supply is unreliable or limited, or where the local situation is adverse, the enforcement might not be advisable. In all instances also, where a higher pressure than that in the municipal mains is maintained in the private fire protection system by pumps taking suction from a separate source of dubious quality, this practice should be discontinued, or disconnection of the two supplies be insisted upon.

It might perhaps be advisable to withhold the enforcement of section 10 of the regulations for another year, so that more definite information in regard to the efficiency of the special F.M. check valve might be collected. Should, however, the amendment requested by the fire underwriters be granted, the following recommendations are made:

(1) That section 3 of the regulations be deleted.

(2) That section 4 (*b*) be deleted from "provided that" to "testing purposes," and section 4 be numbered section 3.

(3) That a new section 4 be inserted reading:

"In all instances where one or more fire pumps are used in conjunction with a municipal system for fire protection, there shall be placed on the discharge side of each pump a gate valve which shall, except in case of a fire, be closed and sealed with light wire, and between the said pump and sealed valve, a connection with a gate valve arranged to discharge to waste for testing purposes."

The recent survey also revealed the fact that there were many plants throughout the Province which are pumping water for industrial purposes, and have direct emergency connections with the municipal supply. Fifty-five plants with eighty-five connections were visited with supplies of this nature. Section 3 of the regulations prohibits any connection of this kind, but in many instances an emergency connection is practically necessary. The usual practice of control on these connections is by means of gate valves, check valves rarely being provided. This type of connection can only be deemed as dangerous from a public health standpoint. Fortunately, in most cases, these industrial supplies are low-pressure systems, and the municipal pressure is usually greater. However, this fact does not entirely eliminate the danger, and no direct connections such as these should be permitted.

As most of the emergency connections to industrial lines are small, ranging in size from a half inch to three inches, provision for the use of the municipal supply for emergency purposes without subjecting it to chance pollution may be made as follows:

(1) By the installation of a four-way stopcock with a butterfly plug at the point where the municipal and private supplies connect to feed the industrial lines. The two supplies enter from opposite sides of the stopcock, and the fourth opening of the stopcock discharges to waste, so that it is necessary to shut off the supply which is not in use by means of a gate or globe valve. This gives a short length of open pipe separating the two supplies.

(2) The two supplies may be brought from opposite sides to a point near

TABLE 1 (*c*)

Corporations with auxiliary fire supplies from reservoirs filled from separate sources. Special F.M. check valves installed.

No.	Name	City	Separate Supply		No. of connections	Date of report	Remarks.
			Source	B. Coli per 100 c.c.			
1	Cockshutt Plow Co.....	Brantford.....	Ground water and returns.....	2–100	1	8/4/24	Cross connected with Adams Wagon Co.
2	Verity Plow Co.....	Brantford.....	Ground water and returns.....	1–20	1	9/4/24	
3	Galt Knitting Co.....	Galt.....	Mill Creek.....	2–1000	1	26/3/24	
4	Canadian Cotton Co., Ont., Mill.....	Hamilton.....	Hamilton Bay.....	3–1000	3	24/7/24	Also fill pipe from city.
5	Steel Co. of Canada, Canada Works.....	Hamilton.....	Rain water.....	2–100	3	22/7/24	Also fill pipe from city.
6	Knechtel Furniture Co....	Hanover.....	Rain water.....	1–4 1–20	3	17/10/24	Also fill pipe from city.
7	Dominion Tire Co.....	Kitchener.....	Artesian wells.....	Wells 2–0 Res. 1–2 2–4	1	13/10/24	Also fill pipe from city.
8	Merchants Rubber Co.....	Kitchener.....	Artesian wells, rain water and returns	Res's 1–20 1–100	2	9/10/24	Also fill pipe from city.
9	Canada Office & School Furniture Co.....	Preston.....	Artesian wells, rain water and returns	1–0 1–4	1	5/5/24	Also fill pipe from town.
10	Empire Cotton Mills Co...	Welland.....	Rain water.....	1–10 1–100	1	18/7/24	Also fill pipe from town.
11	Plymouth Cordage Co....	Welland.....	Cooling water.....	1–10	2	18/7/24	Special F. M. checks on one connection, also fill pipe from town.

TABLE 1 (*d*)

Corporations with auxiliary fire supplies from reservoir filled from town supplies only. Special F.M. check valves installed.

No.	Name	Separate Supply		No. of connections	Date of report	Remarks.
		City	B. Coli per 100 c.c.			
1	Massey Harris Co	Brantford	2–20	2	8/4/24	Cross connected with Waterous Engine Works Co.
2	Waterous Engine Co., Ltd	Brantford	2–1000	1	8/4/24	Cross connected with Massey Harris Co., valves installed.
3	International Harvester Co	Chatham	....	2	4/12/23	
4	Canadian Westinghouse Co., Ltd	Hamilton	2–1000	3 or 4	23/7/24	Double checks on two connections.
5	Hamilton Cotton Co	Hamilton	1–1			One connection, double checks not special F.M.
			1–100	2	22/7/24	
6	Imperial Cotton Co	Hamilton	1–4	2	24/7/24	
			1–10			
7	Sawyer Massey Co	Hamilton	2–0	2 or 3	22/7/24	Special F.M. double checks on two connections.
8	Standard Underground Cable Co	Hamilton	2–20	1	24/7/24	
9	P. B. Yates Machine Co	Hamilton	1–10			
			1–100	1	23/7/24	
10	Lang Tanning Co	Kitchener	1–0	2	9/10/24	
			1–2			
11	Canadian Fabrikoid Co	New Toronto	1–0			
			1–100	1	14/7/24	
12	Reg. N. Boxer Co	New Toronto	1–0			
			1–10	1	14/7/24	
13	Ritchie & Ramsay Co., Ltd	New Toronto	2–0	1	14/7/24	
14	Canadian Shredded Wheat Co	Niagara Falls	1–0			
			1–4	1	5/2/24	
15	DeLaval Co	Peterboro	1–0			
			1–1	1	21/5/24	Only one check, special F.M.
16	Canadian Edison Phonograph Co	St. Thomas	2–1000	1	8/5/24	
17	Canadian Crocker Wheeler Co	St. Catharines	1–20			
			1–1000	2	15/7/24	
18	Canadian Cycle & Motor Co	Weston	2–0	1	28/1/24	
19	Bain Wagon Co	Woodstock	1–2			
			1–10	3	7/5/24	

TABLE 1 (*e*)

Corporations with auxiliary fire supplies from separate sources. Special F.M. check valves *not* installed.

No.	Name	City	Separate Supply		No. of connections	Date of report	Remarks.
			Source	B. Coli per 100 c.c.			
1	Slingsby Mfg. Co.....	Brantford.....	Power Canal, Grand River.....	2–100	1	9/4/24	
2	Campbellford Cloth Co....	Campbellford.....	Trent Canal.....	1–100 1–2	1	21/5/24	By-pass around check valve, town supply not used for drinking.
3	Bates & Innes.....	Carleton Place.....	Mississippi River...	2–1000	1	10/9/24	
4	Hawthorn Mills.....	Carleton Place.....	Mississippi River...	1–10	1	10/9/24	By-pass around check valve, town supply untreated.
5	Cobourg Felt Co.....	Cobourg.....	Factory Creek.....	4–1000	2	28/12/23	Two systems combined.
6	Cobourg Matting & Carpet	Cobourg.....	.....	.....	.....	.....	Two fire pumps.
7	Canada Cottons, Ltd., and Canada Mills.....	Dundas.....	Power Canal and...	1–20			
		Cornwall.....	St. Lawrence River.	1–100 2–1000	1	21/10/24	Pressure above that of town is maintained in fire systems.
8	Canadian Cottons, Ltd., Stormont Mill.....	Cornwall.....	Cornwall Canal and St. Lawrence River.	3–20 1–1000	1	21/10/24	By-pass around check valve.
9	Ont. & Minn. Power Co., Paper Mill Division.....	Fort Frances.....	Rainy River.....	1–4 1–10	2	29/9/24	Two checks installed. Not special F.M. type. By-pass at one connection.
10	Shevlin Clarke Lumber Co.	Fort Frances.....	Rainy River.....	1–10 1–100	1	29/9/24	
11	Plymouth Cordage Co.....	Fort William.....	Kaministiquia River	2–100	1	25/9/24	Two checks installed, not special F.M. type.
12	Guelph Carpet & Worsted Spinning Mills, Ltd.....	Guelph.....	Speed River.....	2–1000	2	6/10/24	Two checks installed, not special F.M. type.
13	National Steel Car Co.....	Hamilton.....	Hamilton Bay.....	2–1000	1	16/9/24	Two checks installed, not special F.M. type. Drinking water off fire system.
14	R. Forbes Co.....	Hespeler.....	Speed River.....	2–1000	1	6/5/24	Gate valve only on town connection.
15	Canadian Locomotive Co., Ltd.....	Kingston.....	Lake Ontario.....	1–100 1–1000	2	5/6/24	
16	Dominion Textile Co.....	Kingston.....	Cataraqui Bay.....	2–1000	2	5/6/24	
17	McClary Mfg. Co., Foundry.....	London.....	Thames River.....	2–10	1	16/1/24	

18	Copeland Flour Mills, Ltd.	Midland	Harbour	....	1	8/7/24	Mutual connection with Midland Elevator Co.
19	Midland Elevator Co	Midland	Harbour	1–100 1–1000	1	8/7/24	Mutual connection with Copeland Flour Mills.
20	International Fibre Board Co.	Midland	Georgian Bay	2–1000	1	9/7/24	Cross connection with Manley Chew & Co.
21	Letherby & Chew, Ltd.	Midland	Georgian Bay	1–20 1–1000	1 1	9/7/24	
22	Manley Chew & Co.	Midland	Georgian Bay	....	1	9/7/24	Have protection from pumps at International Fibreboard Co.
23	Independent Rubber Co.	Merritton	Old Welland Canal.	2–1000	1	16/7/24	Cross connected with Riordan Pulp & Paper Co.
24	Riordan Pulp & Paper Co.	Merritton	Old Welland Canal.	2–1000	2	16/7/24	Cross connected with Independent Rubber Co.
25	Keenan Woodenware Mfg. Co.	Owen Sound	Owen Sound	2–1000	1	11/7/24	
26	National Table Co.	Owen Sound	Owen Sound	2–1000	1	11/7/24	
27	North American Bent Chair Co	Owen Sound	Potawotame River .	1–1000	1	10/7/24	
28	Paris Wincey Mills Co	Paris	Nith River	2–1000	1	10/4/24	
29	Henry K. Wampole & Co.	Perth	Tay Canal	2–1000	1	8/9/24	
30	Port Hope Sanitary Mfg. Co.	Port Hope	Harbour	2–1000	1	27/12/23	Two checks installed, not special F.M.
31	Cleveland-Sarnia Sawmill Co.	Sarnia Bay	St. Clair River	1–1000	1	19/2/24	Gate valve only on connection.
32	Hay & Co	Woodstock	Creek	2–100	2	7/5/24	

TABLE 1 (*f*)

Corporations with auxiliary fire supplies from reservoirs filled from separate sources. Special F.M. check valves *not* installed.

No.	Name	City	Separate Supply		No. of connections	Date of report	Remarks.
			Source	B. Coli per 100 c.c.			
1	Brantford Carriage Co., Ltd.	Brantford	Rain water	1–4	1	10/4/24	Also 6 in. fill pipe from city.
2	Sheldons, Ltd.	Galt	Springs	1–20 1–1000 1–100	1	25/3/24	Two checks installed, not special F.M. type.
3	Riordan Co., Ltd.	Hawkesbury	Ottawa River	1–20 1–1000	1	12/9/24	By-pass around check valve.
4	McClary Mfg. Co., Tin and Enamel Department	London	Rain water	2–0	2	16/1/24	Also fill pipe from city.
5	Seamen Kent Co., Ltd.	Meaford	Overflow from heater	1–2 1–10	1	18/1/24	Also fill pipe from city.
6	Wm. Cane & Sons	Newmarket	Artesian wells	Well 1–4 Res. 1–1000	1	18/1/24	
7	Knechtel Furniture Co	Southampton	Rain water and returns	2–0	1	6/3/24	Also fill pipe from town.

TABLE 1 (*g*)

Corporations with auxiliary fire supplies from reservoirs filled from town supplies only. Special F.M. check valves *not* installed.

No.	Name	City	B. Coli per 100 c.c.	No. of connections	Date of report	Remarks.
1	Adams Wagon Co	Brantford	2–0	1	8/4/24	Cross connected with Cockshutt Plow Co.
2	Gray Dort Motor Co	Chatham	.....	2	4/12/23	
3	Western Canada Flour Mills	Goderich	2–20	1	16/10 24	
4	Otis-Fensom Elevator Co	Hamilton	1–1 1–0	1	23/7/24	Two checks installed, not special F.M.
5	Maple Leaf Milling Co	Kenora	2–0	1	27/9/24	
6	Carriage Factories, Ltd	Orillia	1–0	2	19/3/24	
7	Tudhope Anderson Co	Orillia	1–0	1	19/3/24	
8	General Motors of Canada, Ltd	Oshawa	2–100 1–1000	2	26/12/24	Two checks installed, not special F.M. Two reservoirs. One receives rain water and returns.
9	Canadian General Electric Co	Peterboro	.....	2	20/5/24	
10	Stevens Hepner Co., Ltd	Port Elgin	1–0 1–2	1	6/3/24	
11	Knechtel Furniture Co	Walkerton	.....	1	5/3/24	
12	Canadian Postum Cereal Co	Windsor	.....	1	6/12/23	

TABLE II

Corporations with industrial supplies having emergency connections with a municipal system.

No.	Name	City or Town	Separate Supply		No. of connections	Date of report	Remarks.
			Source	B. Coli per 100 c.c.			
1	Goodyear Tire & Rubber Co.	Bowmanville	Barber's Creek	2–1000	2	27/12/23	
2	Cockshutt Plow Co.	Brantford	Ground water and returns	2–100	1	8/4/24	
3	Slingsby Mfg. Co.	Brantford	Power Canal, Grand River	2–1000	1	9/4/24	
4	Verity Plow Co.	Brantford	Ground water and returns	1–20	2	9/4/24	
5	Watson Mfg. Co.	Brantford	Power Canal, Grand River	2–1000	2	9/4/24	
6	Campbellford Cloth Co.	Campbellford	Trent Canal	1–100 1–20	1	21/5/24	Connection off sprinkler system.
7	Bates & Innes	Carleton Place	Mississippi River	2–1000	1	10/9/24	Connection off fire system.
8	Hawthorn Mills, Ltd	Carleton Place	Mississippi River	1–10	3	10/9/24	Connection off fire pump.
9	Canadian Cottons, Ltd., & Canada Mills	Dundas Cornwall	Power Canal St. Lawrence River	1–20 1–100 2–1000	1	21/10/24	Connection of fire system.
10	Canadian Cottons, Ltd. Stormont Mill	Cornwall	Cornwall Canal and St. Lawrence River	3–20 1–1000	1	21/10/24	Connection off fire system.
11	Elmira Rubber Co.	Elmira	Canigojig Creek	1–20 1–1000	3	27/3/24	
12	Ontario & Minnesota Power Paper Mills Division	Fort Frances	Rainy River	1–4 1–10	1	29/9/24	Connection off fire system.
13	Shevlin Clarke Lumber Co.	Fort Frances	Rainy River	1–10 1–100	1	29/9/24	Connection off fire system.
14	Fort William Paper Co.	Fort William	Mission River	1–100 1–1000	2	25/9/24	One connection off fire system.
15	Galt Knitting Co.	Galt	Mill Creek	2–100	2	26/3/24	One connection off fire system.
16	Victoria Wheel Co.	Galt	Grand River	2–1000	1	26/3/24	
17	Guelph Carpet & Worsted Spinning Mills	Guelph	Speed River	2–1000	3	6/10/24	
18	Canadian Cottons, Ltd., Ontario Mill	Hamilton	Hamilton Bay	1–1000	1	24/7/24	
19	International Harvester Co. of Canada	Hamilton	Hamilton Bay	2–1000	1	25/7/24	Connection off fire system.

20	International Plow Works, Ltd.	Hamilton	Hamilton Bay	2–1000	1	25/7/24	Special F.M. double checks on connection.
21	Steel Co. of Canada, Hamilton Works	Hamilton	Hamilton Bay	2–1000	1	16/9/24	
22	Riordan Co.	Hawkesbury	Ottawa River	1–20			
				1–1000	1	12/9/24	
23	Keewatin Lumber Co., Paper Mill Division	Kenora	Ridout Bay	1–4 1–10	3	27/9/24	
24	Canadian Locomotive Co., Ltd.	Kingston	Lake Ontario	1–100 1–1000	2	5/6/24	
25	Dominion Textile Co.	Kingston	Cataraqui Bay	2–1000	4	5/6/24	
26	Queen's University Power Plant	Kingston	Lake Ontario	1–20 1–100	4	5/6/24	
27	Merchants Rubber Co.	Kitchener	Rain water returns, artesian wells	1–20 1–100	1	9/10/24	
28	Lang Tanning Co.	Kitchener	Artesian wells	1–0	3	9/10/24	
29	City Gas Co.	London	Thames River	.....	1	17/1/24	
30	London Rolling Mills	London	Thames River	.....	1	17/1/24	
31	International Fibre Board Co.	Midland	Georgian Bay	2–1000	4	9/7/24	
32	Letherby & Chew, Ltd.	Midland	Georgian Bay	1–20 1–1000	1	9/7/24	Connection off fire system.
33	Manley, Chew & Co.	Midland	Georgian Bay	.....	1	9/7/24	
34	Davis Leather Co.	Newmarket	Holland River	2–1000	1	18/12/23	Connection off fire system.
35	North Amer. Bent Chair Co.	Owen Sound	Potawotame River	1–1000	1	10/7/24	Connection off fire system.
36	Penmans Ltd., Mill No. 1	Paris	Nith River	1–100	3	11/4/24	
37	Penmans, Ltd., Mills No. 2, 3 and 9	Paris	Grand River	1–1000	2	11/4/24	
38	Canadian Gen. Electric Co.	Peterboro	Spring and returns	2–100	1	20/5/24	
39	Canadian Packing Co.	Peterboro	Otonabee River	1–100 1-1000	1	20/5/24	
40	Canadian Woollens Ltd., Auburn Mill	Peterboro	Otonabee River	1–2 1–100	3	20/5/24	
41	Canadian Woollens, Ltd., Bonner-Worth Mill	Peterboro	Creek	2–10	1	22/5/24	
42	DeLaval Co	Peterboro	Driven wells	2–0	1	21/5/24	
43	Quaker Oats Co.	Peterboro	Otonabee River	2–20	1	19/5/24	
44	Provincial Paper Mills	Port Arthur	Thunder Bay	1–10	1	24/5/24	
45	Maple Leaf Rubber Co.	Port Dalhousie	Welland Canal	2–1000	1	16/7/24	Connected through overhead tank.
46	Canadian Office and School Furniture Co	Preston	Artesian Wells	1–0	1	5/5/24	
47	Benedict Proctor Mfg. Co.	Trenton	Trent River	.....	2	12/3/24	
48	Dominion Combing Mills	Trenton	Trent River	.....	2	12/3/24	
49	Ford Motor Co., plant No. 1	Ford	Detroit River	2–1000	2	7/12/23	
50	Parke Davis & Co.	Walkerville	Detroit River	1–1000	3	7/12/23	Disconnection secured.

the dual discharge line. On the discharge line is placed an elbow, short piece of pipe and a union. The piping is so arranged that to make use of either supply, the one must be disconnected and the elbow turned around to meet the other feed line. This gives absolute disconnection of the two supplies at all times.

(3) A tee with a replaceable plug with gate valve on each side of it may be placed on each feed line. When the industrial supply is being used, the tee on this line is plugged and both gate valves open, while on the municipal line both valves are closed and the tee unplugged.

(4) The two supplies may be disconnected by the removal of a short length of pipe which is kept at this point, and may be replaced should the occasion arise.

There are certain objections to the last two devices in so far as their efficiency depends entirely upon the zeal of the employees of the plant. At one plant visited, where the system suggested in No. 3 is in vogue, the plug had not been removed at one of the connections.

Appended hereto is a list of plants visited, together with data in regard to their auxiliary water supplies.

MOTOR TOURIST CAMPS

A. V. DeLaporte, B.A.Sc., Chem. E. (Tor.), M.E.I.C.

An inspection was made in August, 1924, of a number of motor camps throughout the Province. This included all motor camps which were listed in the Motor News columns of the Toronto daily papers, and in addition a number of private camp sites which were not listed. It was impossible without motor cars to inspect all the private camp sites because they are all situated along the highways, and it would require a tour of all the main travelled roads to complete such an inspection. The work was done in conjunction with the chlorination inspection service.

In all, 127 camps were inspected. Town water supplies were available in sixty camps. Wells were used in fifty-six, springs in nine, rivers and lakes in seven, and in four camps there was no provision for a water supply at all. Fifty-four of the wells, springs, rivers and lakes supplies showed considerable contamination, sixteen were fair, and nine were in good condition. Some of the town supplies that were available for use showed contamination. Some supplies, such as Iroquois and Strathroy, are not protected in any way. It would be advisable to have proper notices warning tourists about the supplies which are not safe, and pointing out the places where the drinking water is properly protected.

The Ontario Motor League supplies information to tourists, and it should be possible to secure their co-operation to eliminate the use by tourists of undesirable camping sites.

The city of Niagara Falls, Ontario, licensed the two motor camps in that city, and stipulated that they should install flush closets, baths, etc. The camps are regularly inspected, and are in good condition. Other municipalities will probably follow the example of Niagara Falls. This will not, of course, improve those camps outside town limits.

It would simplify the inspection service of these camps if the highway police were to list those in their respective areas, giving the location, and providing this Department with a copy of such list. This would save much time and expense in locating the camps.

It is therefore recommended:

(1) That the Department of Health of Ontario issue regulations governing motor tourist camps, whether the camps be free or otherwise.

(2) That in camps where the water supply is not of good quality, directions for the protection of the drinking water be conspicuously posted, and where the supply is good, notices stating so be also posted conspicuously.

(3) That the Provincial Police be asked to submit lists of camps in their respective areas.

(4) That the Ontario Motor League be given the information about the various camps for distribution to tourists.

TOURIST MOTOR CAMPS

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
1	Alexandria.....	None.								
2	Alliston.....	Exhibition Park.			Town water, F 7, F8.	0	Dry earth privies, men 2, women, 2.	Fair	Cans as receptacles.	Camp not used as yet; clean.
3	Almonte..... (6, 8, 24)	Agric. Grounds.		10 acres	Well drilled, 45′ deep w.t. C37,	4	Men, 1, 25 seats; women 2, 2 and 6 seats.	Dry earth	Park caretaker.	No tourists as yet.
4	Athens..... (12, 8, 24)	Memorial Park, centre of village		half acre	Well, dug, good, c. & w. top, C 47, 48.	10	None		None	Owned by Women's Institute, has never been used by motorists.
5	Aylmer.....	In Fair Grounds.			Town supply, D81, 82	20	Men's toilet is open privy with bar for seat and dirty. Women's in fair condition.			Not used.
6	Ayr.....	Athletic Field.		10 acres	Well, f.w.t. dug, brick 22′ deep, well g.c.t. dug brick 22′ deep.	1,000 2	Men, 2 seats; women, 2 seats		Barrels as receptacles. Burnt by attendant.	
7	Bath.....	Bay of Quinte, (E. end of town)		250′ x 200′	Bay of Quinte, C15, 16.	10	None		None	Owned by Mr. F. Lloyd.
8	Bayfield.....	Centre of village.		4 acres	Well, dug 12′ deep, wood crib f.w.t., A 41, 42.	100	None, use toilets at near-by houses.		Destroyed by tourists.	Park nicely shaded.

9	Beamsville, Aviation Camp..	East Beamsville.	50c. to camp 35c. per meal $1.50 per room	10 acres	Town water being installed. Well, w.t. D7, 8.	60	Old army latrine, labelled.	Cleaned every 2 weeks.	Gathered and burnt.	A. Burland; fair; at present fixing up, should ultimately be good.
10	Beamsville, Maplewood Camp	Half mile west of Beamsville.	$1.00 night.	About 2 acres	Well, conc. top, D3, 4.	1,000	2 dry earth closets, labelled men and women.	Clean	Dumped in pit at back of ground.	Conditions good; A. Burland.
11	Beamsville, West side camp.....	Western limits.	50c. to camp $1.50 for bed	2¾ acres	Dip well, stoned, 30′ deep, D5, 6	100	2 men, 2 women; dry earth, labelled.	Clean	Burnt daily.	Fair.
12	Belleville.....	None								
13	Blenheim.....	S.W. end of town	Yes	2 acres	Dug 30′, w.t. D 3.	1,000	1 2-seat privy, sliding box type.	Good	Owner in charge. H. Young, proprietor.	Condition of camp is fine; wooded; benches and tables; summer house with stove
14	Blind River.....	Baseball ground, East end of town		12 acres	Well w.t., W28, 29.	550	None		Taken care of by tenants.	
15	Bobcaygeon.....	Agricultural grounds on Little Bob river.		20 acres	Well drilled 10′, A9, 10.	52	2-seat privy for each sex.		Attendant in charge.	
16	Bonfield.....	Agricultural Grounds.		12 acres	Spring, not protected, W7, 8.	60	None.			Rarely used.
17	Bracebridge.....	On Muskoka River.		200 yds. x 60 yds.	Town supply, also spring; Town, W 18, 19; spring, W 16, 17.	4 12	A 2-seat box privy for each sex.	Cleaned by town when necessary.	Taken care of by tenants.	Owned by Muskoka Motor Club; wooded and sandy soil; boating and bathing.
18	Bradford.....	Holland River.		5 acres on a flat	Dug well 20′ deep, w.t. Pump locked.	550	Dry earth privies, one for each sex.	Clean		Caretaker in charge all the time; eight tents with beds, etc.
19	Brantford.....	In Mohawk Park to East of city.		12 acres	Well, driven, D73, 74.	55	Flush closets for women, pail privies for men		Burnt by caretaker.	Beautifully situated on Mohawk Lake; inspected by city sanitary inspector.

TOURIST MOTOR CAMPS—Continued

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
20	Brighton.....	Presqu'Isle, pt. Lake Ontario side; Gov. reserve, 2½ to 3 miles from village.		Plenty of area	Drilled well, w. t. samples, C7, 8.	0	None as yet.		Collected by caretaker twice weekly and buried.	
21	Brighton.....	Town Hall grounds.			Town tap.	0	Double dry-earth privy.			Not often used.
22	Brockville.....	St. Lawrence Pk. on St. Lawrence River, westerly limits.		100 yds. x 200 yds.	Town tap, C21, 22.	7	Dry-earth, 1 seat, each; do. for men.	Cleaned weekly by town scavenger; chl. of lime used.	Garbage tins cleaned and burnt daily by caretaker	
23	Caledonia.....	None								
24	Cardinal.....	Town park on St. Lawrence River		11 acres	Town tap, C27, 28.	60	Pit privy, 1 seat; 2 new privies being built.	Never been cleaned	Collected and burned daily by sanitary inspector.	Five or six parties per week.
25	Carleton Place...	None								
26	Chatham.....	Victoria Park.		25 acres	Town water, D 6.	0	2 2-seat, sliding box.	Fair	Garbage receptacles.	Kitchen with range, park electric lighted.

27	Cobden.....	Muskrat Lake, centre of village		2 acres	None, samples of Muskrat Lake, C-39. Mrs. Smith's well, dug, stoned, p.w.t. C40. B. Olmstead, well, C41. McCoy's Hotel well, C 42.	1,000 1,000 1,000 1,000				Not official camp; has not been used by motorists.
28	Cobourg..... 23, 7, 24.	East of town park.		50x100 yds.	Town tap, C3, 4	0	Privy, 1-seat and urinal; privy 3-seat, male; privy 4 seat, female. Bowling Green toilets t.c. and S. con. also available.	Caretaker attends cleaning of privies every week if necessary, by town.	Two waste-baskets at kitchen; garbage taken daily by town teams.	
29	Collingwood.....	Victoria Park on Georgian Bay.			Town tap, F21, 22.	2	Privies for both sexes.	Good condition	None	Clean and well kept.
30	Creditvale.....	Credit River.			Drilled well, F1, 2.	1,000	Privy, 2-seat, men; privy, 3-seat, women.		Collected	Owned by Toronto Milling Co.; well-kept and attractive.
31	Deseronto.....	Main Street, opp. Bank of Montreal.		200′ x 250′	Well, dug stoned, f.w.t. C13, 14; also town tap for washing purposes, T.W.	510 510	1 privy, 1-seat, used by both sexes.	Cleaned weekly by town scavenger.	Collected and burned daily by town scavenger.	Average two parties daily.
32	Dundas.....	In Town Park.			Town water, and a well, c.t. D71, 72.	505 6	Flush closets to sewers.	Excellent	Collected by caretaker.	Kitchenettes; a well-kept camp.
33	Dundas Falls....	On Heights to north of Dundas			Well, w.t. D69, 70, about 300 yards from camp.	1,000	Privy.	Dirty	Paper littered about the grounds.	A lovely camp site but no convenience. Well about 300 yds. away; privy across creek crossed by stepping stones.

TOURIST MOTOR CAMPS—Continued

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
34	Elmira.....	.....			Town tap, No. 1, 2.	0	1 double seat privy for each sex.	Fair condition, not used for some time	Destroyed by tourists themselves.	Not used very often.
35	Erin.....	Stanley Park			Well, F5, 6.	60	2-seat privy for each sex.		Cans as receptacles.	Good condition.
36	Eugenia.....	Eugenia Park.			Well, F11, 12.	1	Privy for each sex.	Clean	Burnt in stove.	Operated by H.E.P.C.; very good condition.
37	Exeter.....	S.W. end of town		1½ acres	J. Norry's well, 30′ dug, brick, g.c.t. A32, 33.	550	Double seat privy used by both sexes.	Not much used	Collected by caretaker.	
38	Fenelon Falls...	Cameron Lake.		6 acres	W. Burgoyne's drilled well, drilled and blasted, 70′, f. w.t. A5, 6. Town tap, A7, 8.	60 100	2-seat privy, used by both sexes.	Cleaned twice yearly; fair condition.	Disposed of by tourists themselves.	
39	Fort Frances.....	Point Park on Rainy River.		½ acre	Point Park tap, raw water from Rainy River, W5, 6.	0	1 Kaustine for each sex, separate entrance to building.		No provision as yet, apparently burned by tourists.	About four parties daily.
40	Fort William..... 24, 7, 24.	8 miles west of city limits, Kakabeka Falls Road.		100 acres	Well dug 30′ deep, 4″ dia. wood crib down 15′, g.w.t. W3, 4.	10	1-seat privy for each sex.	Moved once a month and pit filled in.	2 cans provided, collected and burnt daily by attendant.	10 to 15 parties daily.

41	Galt—(1).....	Victoria Park, W. end of city.		10 acres	City tap, A17.	0	1 F.C. for each sex, S. con.	Good condition	Cans collected by city.	
42	Galt—(2).....	Sopher Park, N.E. end of city.		6 acres	City tap, A18.	0	F.C. for each sex in Bowling Club house.	Good condition	Pails collected by city.	
43	Gananoque..... 29, 7, 24.	St. Lawrence River, E. end of town.		3 acres	Town tap, C19, 20.	0.5	1 dry earth, 1-seat privy for each sex.	Cleaned by Mr. Williams when necessary; lime also used.	Cans provided; burnt by Mr. Williams	D. F. Brittin's estate; town has use of it at present. 10 to 12 cars nightly average.
44	Glencoe.....	(See Newbury)								
45	Goderich.....	Lake Huron.		1½ acres	Town tap, A36, 37.	10	2-seat privy for each sex.	New, good condition	Burnt by attendant who also lives on grounds.	
46	Grand Bend.....	Lake Huron.		10 acres	Well, dug 24′ deep, tile, g.w.t. A34, 35.	550	2-seat privy for each sex.	Fair condition	Destroyed by tourists themselves.	
47	Grimsby Beach Park.....	Lake Ontario, E. of Grimsby.			Grimsby T. tap, D1, 2.	60	16-seat f.c. for each sex.	Clean	Receptacles.	
48	Guelph.....	Riverside Park.			Spring, F3, 4.	15	1-seat for men, and 2-seat privy for women; dry earth.		Collected daily and burnt.	Owned by City, operated by Parks Board.
49	Hagersville.....	Town Park.			Well, p.c.t.	0	2 privies.	Poor condition		No charge; available, but not used by tourists.
50	Hanover.....	Knecktel Park.			Town tap.	0	1-seat privy for each sex.	Clean		Well, dry.
51	Havelock.....	Fair Grounds.		10 acres	Well, drilled 45′ deep, g.c.t. A 15, 16.	0	1 double-seat privy for each sex.	Fair condition	Looked after by tourists.	
52	Hawkesbury.....	None								

TOURIST MOTOR CAMPS—Continued

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
53	Homer.....	Old school property east of Homer.		half acre	Well, w.t. D33, 34.	1,000	1 privy for each sex.	Washed daily and covered with lime.	Burned daily.	
54	Humber.....	West of Humber River on Lake Ontario.		3 acres	New Toronto tap.	4	1 dry earth privy for each sex.	Fair condition	Cans provided; attendant in charge.	Nominal charge of 50c. car night; 12 parties at time of inspection; operated by R. Crowe, as free camp.
55	Huntsville.....	Memorial Pk. on Fairy Lake, at East end of town		40 acres, camp site 100′ x 200′	Well, glazed tile c.t. vent and good pump 16′ deep, W20, 21.	1,000	1 2-seat pit privy.		Burnt by attendant.	New camp well patronized; excellent cookhouse, bathing.
56	Ingersoll Camp...	Fair Ground.			Town water, D 79, 80.	7	Privies not labelled.	Dirty	Papers littered about.	
57	Iroquois.....	Town Hall Grounds.		125′ x 40′	Town tap at house nearby, C26; also Mr. Gregory's well, 38′, dug and drilled, w.t. C 25.	1,000 1,000	None.		None.	Has not been used neither this year nor last.
58	Jarvis.....	Fair Ground.			Drilled well, g.t.	0	1 privy with 3 seats overturned.			No charge, and not much used by tourists.
59	Jordan.....	Wills Camp, by Prov. Highway.	50c. per night		Well, stone curb, dip.	1,000	2 privies with pails.			

59*a*	Jordan.....	Mrs. Hannigan, by Prov. Highway.	50c. per night		Well water carried from village to drink.	20	2 privies.			
59*b*	Jordan.....	Tolman, by Provincial Highway	50c for prk'g. $1 for shelter		Spring for washing; well.	1,000	2 double privies.			2 wood shelters.
60	Kincardine.....	Lake Huron, Fair Grounds.		10 acres	Town tap, A43, 44.	4	F.C. for each sex to septic tank.		Disposed of by tourists.	
61	Kingston..... 29, 7, 24.	S.W. corner of Exhibition grounds.		250 x 300 yards	City tap, C17, 18.	0	1 privy 5 seats, women; 1 privy 4 seats, men, and urinal; also 1 privy, long seat.	Cleaned by city when necessary.	Collection and disposal by city.	11 to 12 cars daily.
62	Kitchener.....	Victoria Park.			City tap, A25, 26.	0	3 seats f.c. for women, 5 seats f.c. and urinal, men, s. con.		Collected by attendant and taken away by city	
63	Lakefield.....	Kachawam, Ika River.		30 acres	River A13, 14.	550	None.		Burnt by tourists..	
64	Lanark..... 5, 8, 24.	Agric. Grounds.		4 acres	Well, dug, stoned, tiled, 20' deep, f.w.t. C 29, 30.	100	1-seat dry earth privy to each sex.	Cleaned each year before annual meeting.	None.	No tourists have used this camp as yet.
65	Leamington.....	Seacliff Park, 1 mile s. of town.		1 acre	Flow well 300 yards distant; D7, flow well, S. of pavilion; D8, town water at pavilion.	10 0	1 large double lavatory, f.cs., urinals, etc.	Fine.	None.	Accommodation for 6-8 parties; many permanent campers on grounds.
66	Listowel.....	N.E. pt. of town.		12 acres	Town tap, A38, 39, 40.	1,000	None.		Taken care of by tourists.	
67	Lobo.....	At Lobo Village, on Sarnia Rd.		¼ acre	Drilled well, c.t. new pump, D 17.	10	1 1-seat privy, pail type.	Cleaned by owner when necessary.	None.	Private camp operated by Marsh, village storekeeper.

TOURIST MOTOR CAMPS

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
68	London.....	At Springbank, on Longwood Rd., half mile w. of London.		5 acres	Town water D 12, 13.	2	2 2-seat dry earth privies.	Fair.	None.	Park accommodation, about 100 parties.
69	L'Orignal.....	None								
70	Mattawa.....	Old Hudson Bay Co. Fort, junc. of Mattawa and Ottawa Rivers.		5 acres.	Spring W9, also Ottawa River water available.	10	None.			Rarely used.
71	Meaford.....	On lake shore, outskirts of town			None.		None.		None.	
72	Merrickville..... 6, 7, 24.	Agric. Grounds, Rideau River.		13 acres	E. L. Telford's well, dug 18', stoned, w.t. C 35, 36.	550	2-seat dry earth privy for men, 3 seat same women.	Cleaned by Agric. Socy.	None.	Not official camp; has never been used.
73	Merritton.....	Beside old canal.		200' x 100'	Town water.	4	None.			Owned by Lincoln Paper Co; not used this year.
74	Morrisburg..... 7, 31, 24.	Exhibition Grounds.		300x250 yards	Town tap, C23, 24.	550	2-seat privy.	Not used.	No collection.	Not official camp; rarely used.
75	Napanee..... 25, 7, 24.	Springside Park, on Napanee R.		7 acres	Spring, C11, 12.	20	2-seat privy, used by both sexes.	Cleaned when necessary by caretaker.	Removed and burnt by caretaker.	

76	Newbury, Glencoe.....	On Longwood rd. 3 miles S. of Glencoe, 6 miles E. of Newbury.		2¼ acres at roadside	Dug well; cement top in poor condition, D11.	1,000	2 2-seat privies.	In need of cleaning	None.	Owner, N. Carrie; on premises, garage and service station.
77	New Liskeard....	On N. Liskeard Beach, on main road at S.E. of town.		15 acres	Town water, also dug well with w.t. X9.	2	2 pit-privies, with 6 seats.			Sandy soil, and bathing facilities.
78	Niagara Falls....	Two camps: Falls View Camp, Niagara Falls Camp.			City water.	2	Flush closets to city sewers.		Collected daily and removed.	Licensed by City Board of Health and supervised by M.O.H.
79	North Bay.....	Amelia Park on Lake Nipissing.		300′ x 250′	Town water, W 10, 11.	20	A single privy for each sex.	Cleaned twice weekly by town, or more often.	Burnt in incinerator by tourists or attendant.	
80	Orangeville.....	None.								
81	Orillia.....	Lake Couchiching.	$1.00 night	10 acres	Pipe out 300′, pumped by hand.	4	2 dry earth privies.	New and clean	Burned in stoves.	Good condition, operated by Kiwanis and Rotary Clubs. Pres., Supt. attends refuse.
82	Oshawa.....	None								
83	Ottawa.....	Lansdowne Park.		1½ acres for camp purposes	City tap, C43, 44.	0	F.Cs. for each sex to sewer.		No disposal at present.	
84	Owen Sound.....	Harrison Park.			Town tap, F15, 16.	15	2-seat privy, men; 3-seat privy, women.		Iron cans.	Ideal camp in every respect.
85	Paisley.....	Fair Grounds on Saugeen River.		16 acres	Well, dug, wood crib p.w.t. 18′ deep, 21′ from privy, A45. Well, dug, tiled, f.w.t. 20′ deep, A46.	20 1,000	1 privy, 6 seats.		Looked after by tourists themselves.	

TOURIST MOTOR CAMPS—Continued

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
86	Paris.....	In Ath. Grounds on Grand River.			Town water, D 75, 76.	3	2 pit-privies.	Just fair.	Collected by caretaker.	Kitchenette; a very good camp, except that privies could be cleaner.
87	Pembroke..... 7, 7, 24.	Westerly limits on Ottawa river		37 acres	None.		1 double privy box, 1 seat in each compartment.	Cleaned when necessary by town.	Caretaker employed by town.	Has never been used by motorists.
88	Perth..... (not official) 5, 8, 24.	Ex. grounds can be used.		18 acres	Town tap, C31, 32.	12	F.C. for both sexes, s. con.	Building locked.		Never been used.
89	Peterboro.....	Inverlea Park, on Otonabee river.		4 acres	Well, dug 30' deep, stoned, c. crib and top. A, 11 & 12.	505	2 double-seat privies, 1 for each sex.	Cleaned four times yearly.	Attendant.	
90	Petrolia.....	Agric. grounds, athletic grounds		25 acres	Town water, D15.	4	1 3-seat dry earth privy, very old.	Fair	None	Rarely used.
91	Picton.....	None								
92	Port Arthur..... 24, 7, 24.	Current river pk. on Current river, W. Cumberland Street, in city limits.		1 acre & 5 more available in park.	City water, W1, 2.	0	2 chem. closets, 3 seats each. 1 for each sex.	Cleaned daily by Parks Bd. Creolin used	3 garbage cans emptied daily and contents burnt in incinerator.	Average 25 parties daily. Accommodation for 60. Controlled by Parks Bd.
93	Port Burwell.....	Memorial Park, on Lake Shore.			Shallow well, tiled, dip, D89.	1,000	Privies.	Dirty.	Collected and burnt.	A lovely camp site on a sandy beach. Could be made into a lovely spot.

94	Port Elgin.....	Lake Huron, just beyond harbour			Spring, C1, 2.	10	None.		None.	Just recently set aside as camp by municipality. Rarely used.
95	Port Hope.....	Town Park and Race Track.			Town tap, C1, 2	0	2 2-seat privies for ladies, same for either sex, 2 3-seated privies for either sex.	Chloride of lime used. Cleaned once yearly.	Steel cans provided where tourists can burn refuse.	Not many tourists this year.
96	Port Perry.....	W. side of Lake Scugog.		half acre	Town tap, A21, 22.			Outfall to creek.		
97	Preston.....	Riverside pk. on Grand river, N.E. end of town		40 acres		0	Men's privy, 2 seats and urinal; ladies' 3 seats, also 2 f. cs. in Grand Stand.	Cleaned several times in season.		Attendant lives on premises.
98	Rondeau.....	Rondeau Govt. Pk. on Lake Erie. At least 100 acres could be used for camping.			Driven wells, D4, 5.	0	2 large lavatories, chem. closets and urinals.	Fine	Rubbish barrels.	Park in good condition, maintained by Prov. Govt.
99	St. Catharines....	On bank of ship canal			City water, D 13, 14.	0	Dry earth privies, not labelled.	Dirty.	Dumped at back of camp.	Not well kept; several cars came, and went away on seeing conditions.
100	St. Davids.....	By St. Davids Springs.			Spring, D36.	100	Pit privies.	Cleaned weekly, filthy condition.		D. W. Johnston, owner; no charge.
101	St. Thomas.....	Pinafore Park.		10 acres devoted to tourists.	Town water, ST 1.	4	2 well-built lavatories, with f. cs., urinals, wash basins at camp; 2 2-seat dry earth closets.	Fine.	No garbage receptacles, much rubbish present. Otherwise clean.	Advised City Engineer to place rubbish barrels at park.

TOURIST MOTOR CAMPS—Continued

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
102	Sarnia.....	On road to Lake Huron Beach.		30 acres	Town water.	0	2 2-seat privies, dry earth.	Cleaned daily by attend't. with chl. of lime.	Garbage emptied by collector.	Park in good condition at time of visit.
103	Sault Ste. Marie..	On St. Marys River at e. end of city.		25–30 acres	City water, W 22, 23.	0	Men, 3-seat f.c. urinal and wash basin to sep. tank. Women, 3 f. cs. and wash basin.		Burnt by attendant.	Good location, wooded, sandy soil.
104	Shallow Lake....	None								
105	Smiths Falls.....	Centre of town e. side of Rideau canal.		3 acres	Town tap at neighbours or town hall, drilled, c. t. not water tight, C 33, 34.	1,000	To have f. c. and s. con. for each sex.		Cleaned by town.	10-12 parties a week.
106	South River.....	Agric. Grounds, centre of town.		15 acres	Driven well, W 14, 15.	60	1 privy.		Taken care of by tourists.	Sandy soil, rarely used.
107	Stouffville.....	Ex. Park, centre of town.		3 acres	Town tap.	60	Dry earth privy for each sex.	Fair condition.	No means of disposal.	Good condition.
108	Stratford.....	Queens Park, on River Avon.			Town tap, A27, 28, 29.	0	3 f. cs. for women, 2 f. cs. for men, and urinal; town sewer.	Very clean.	Collected by attendant.	Very good condition

109	Strathroy.....	On Front Street, at Armories.		half acre	Town tap on premises, well at marble works across town; well.	1,000 0	No sanitary accommodation.			Camp rarely, if ever, used; instructed Mayor to have sign placed, advising tourists not to use tap water.
110	Streetsville.....	(See Creditvale).								
111	Thessalon.....	Lakeside Park at N. end of town, on Main Road.		8 acres; park area about 30 acres	Town supply, W 26, 27.	2	A double privy, 2 seats in each compartment.		Burnt by tourists.	Fine location, wooded, sandy soil, bathing, electric light.
112	Thornbury.....	Shore of Georgian Bay.			Well, dug F19, 20.	1,000	None.		None.	
113	Tilbury.....	Town camp on Stewart Ave. at Memorial Park		10 acres	Dug well, c. t. 2′ above ground. Well had to be primed. Town tap on premises D2, broken		2 3-seat dry earth privies.	Need cleaning.	None.	Advised Park Commissioner to have sign at park advising tourist not to use town water, and to repair pump.
113	*a* Tilbury.....	Deyes camp adjacent to town camp.		1 acre	Dug well, elec. pump in dwelling, D1.	20	1 1-seat closet.		Burnt by tourists.	Private camp, owner in charge.
114	Tillsonburg.....	Fair Grounds.			T. W. being put in, 2 wells, w. t. D85, 86..... D87, 88.....	550 1,000	Privies.	Dirty.		
115	Trenton..... 23, 7, 24.....	Hanna Park.		8–10 acres	Well, drilled, g. c. t. almost dry C5, 6.	1,000	3-seat privy, women, 2-seat privy men, box type.	Chl. of lime used, cleaned by caretaker	Baskets provided, burnt by caretaker	
116	Trout Creek.....	Memorial Park, near Main Rd.		15 acres	Well, w. crib and top, W12, 13; 12..... 13.....	20 1,000	2-pit privy, also 2 privies at school available.		Taken care of by tourists.	Seldom used.
117	Walkerton.....	Bend Park, on Saugeen River.			Town tap, A47, 48.	100	1 1-seat privy for each sex.	New.	Destroyed by tourists.	

TOURIST MOTOR CAMPS—Continued

	Name of place	Location	Charge	Approx. area	Water Supply		Sewerage		Refuse	Remarks
					Source	B. Coli per 100 c.c.	Type	Condition and disposal		
118	Watford.....	Agric. Grounds		25 acres	2 taps with town water, D 14.	0	2 dry earth privies.	Fair.	None.	Camp rarely used.
119	Waterloo.....	N. end of town park		12 acres	Town tap, A23, 24.	0	5 f. cs. and 2 wash basins for women. 4 f. c. urinal, 1 wash basin for men.	Clean, outfall to septic tank.	Collected by attendant and destroyed by town.	
120	Wellington..... 24, 7, 24.	Wellington Park, near centre of village		1½ acres	Well, dug 12' deep, stoned, c. t. C9, 10.	20	2-seat privy for each sex.	Cleaned every spring by corporation.	Collected and burnt by attendant.	
121	Westport..... 12, 8, 24.	N. W. end of town at bathing beach, on upper Rideau or Sand Lake.		200'x60'	Town spring at centre of town, C45, 46.	12	1-seat dry earth privy for each sex.	Cleaned when necessary by sanitary inspector.	Collected and burnt by tourists.	
122	Wheatley.....	On Talbot Road, 1½ miles E. of town. Camp space along roadside.			No well on premises. Water has been obtained at neighbours 100 yards away, D9.	1,000	1 2-seat privy on grounds.	Fair.	None.	Private camp owned by B. Robinson, rarely used this season. Owner is remodelling house, driving a well and improving camp.
123	Whitby.....	Town Park on Brock Street.		5 acres	Town tap, A1, 2	5	F. cs. to town sewer.	Filthy condition.		Looked after by attendant.
124	Wiarton.....	Colpoys Bay.		2 acres	Town tap, A49, 50, 51, 52.	0	1 double seat privy for each sex.	Fair condition	Looked after by tourists.	

125	Windsor.....	On Dougall Ave. S. of M.C.R.		10 acres allotted tourists.	Town water, D 10.	20	2 2-seat dry earth privies.	Bad, although scrubbed weekly.	Collected daily.	Instructed attendant to look after closets which swarmed with flies.
126	Wingham.....	Fair Grounds.		10 acres	Drilled well, A 30, 31.	0	None.		Looked after by tourists.	
127	Woodstock.....	Southside Park, by pumphouse.			Town water, D 77, 78.	0	Flush closets.	Excellent.	Collected in cans and removed.	Kitchenettes;a beautiful camp, well-kept and attractive. Widely spoken of by tourists.